17" Auto scan Colour Monitor

Chassis :CM 2500

Service
Service
Service

EPA POLLUTION PREVENTER

DDC/Power saving/TCO
User-friendliness Control

107P2 CM25 GSIII

107P20/00

Service Manual

Horizontal frequencies
30 - 92 kHz

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REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

GB 3138 106 10113

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IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all PHILIPS Company** Equipment.
The service procedures recommended by PHILIPS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully Read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper Service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. PHILIPS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, PHILIPS has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by PHILIPS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

** Hereafter throughout this manual, PHILIPS Company Will be referred to as PHILIPS.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from PHILIPS. PHILIPS assumes no liability, express or implied, arising out of any unauthorized modification Of design.
Servicer assumes all liability.

*** Broken Line** ▬ . ▬ . ▬ .

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

LightFrame™ for Windows

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Introduction

Philips LightFrame™ feature enriches the experience of pictures and video on a Philips CRT (picture tube) monitor. This highlighting is done by boosting the brightness and sharpness on a selected region of the monitor screen. Since high brightness and sharpness are not preferred for most standard Windows applications, this special feature will only be active in certain circumstances. So that you can control these circumstances, a special program and icons will be installed in your Windows operating systems.

Notes

Philips LightFrame™ will only work with monitors that have been built to use this software. Earlier Philips monitors or other manufacturers' monitors will not work with this special software. It is recommended that you install this software only on a Philips monitor designed to use it. These monitors can be identified by the LightFrame™ logo on the front of the monitor.

This software is not designed for use with LCD flat screen monitors.

LightFrame™ will work with true Windows-based programs and DOS-based programs that operate in a Window's environment. It will not work with DOS-based programs operating only in a DOS environment.

Definitions

The following list contains definitions for frequently used words.

Highlighted window: The selected window on which LightFrame™ is active.

Highlighted area: The selected rectangle (area) on which LightFrame™ is active.

Compatibility

This version of LightFrame™ is compatible with
Windows 95
Windows 98
Windows NT
Windows 2000 Professional Edition.

Language Selection

While English is the default language of LightFrame™, the User Interface can be set up to operate in Dutch, French, German, Italian, Portuguese, or Spanish.

Installation

1) To install LightFrame™, place the CD in the CD-ROM drive.

2) Next, when the menu of items on the CD appears on your screen, click on 'Install LightFrame™'.

3) Now, follow the on-screen prompts to properly install the program. The software checks to see if you have a compatible monitor. You must say yes to the license agreement for the software to install.

4) After installation, LightFrame™ automatically loads and the icon appears in the taskbar.

Notes

LightFrame™ is installed in the Start menu, under Programs. Unless otherwise selected during installation, LightFrame™ is installed in "C:\Program Files\Philips\LightFrame." A shortcut is installed in the StartUp folder and on the desktop. (If needed, LightFrame™ can be operated manually from the StartUp folder.)

If LightFrame™ detects that your monitor is not LightFrame™ compatible, an message appears on the monitor screen. See Error Message number 1 under the heading Error Messages. If you see this message, you can select to abort or continue the installation. However, if you continue the installation, LightFrame™ will probably not work on the monitor.

Uninstall

Should you need to remove the LightFrame™ software, please follow these steps.

1) First, click on the Start Menu.

2) Next, highlight Settings.

3) Then, click on Control Panel.

4) Now, click on Add/Remove Programs

5) Finally, select LightFrame from the list and then click on the Add/Remove button.

Operating LightFrame™

After installation, LightFrame™ starts up automatically whenever the computer is started. At system start up, LightFrame™ checks the selected resolution of the monitor and if the monitor is LightFrame™ capable.

Icon and Colors

An icon of a monitor represents LightFrame™ on your desktop. This icon appears as a shortcut on the Windows desktop. LightFrame™ has three (3) modes of operation: Active, Inactive, and Suspended. The same icon with a different color in its center represents each mode.
Active = The LightFrame™ icon has bright green center.
Inactive = The icon has a gray center.
Suspended = The icon has a yellow center with a red cross.

Notes

An active window must be 100% visible, i.e. it must be on top of all other windows or areas. If any part of another window or area overlaps a highlighted window, LightFrame™ automatically suspends operation. That means the icon goes from a green center to a yellow on with a red cross and the feature ceases. Once that window or area is removed and the original highlighted window is on top again, LightFrame™ automatically re-engages and the icon regains its bright green center.

An active window must also be 100% on the monitor's viewing area. If part of a highlighted window moves off the monitor's viewing area, LightFrame™ automatically goes into the Suspended mode. If part of a window is off the viewing area, you will not be able to use LightFrame™ on that window.

Only one window or area at a time can be highlighted.

How To Activate LightFrame™

1) Click on the LightFrame™ icon in the systemtray (the area to the far right in the taskbar). . The icon will turn from gray to a green center.

2) Guide the mouse to the window you want displayed. As you move the mouse, the cursor changes to a small arrow with a light bulb.

3a) Click on the window you want to have highlighted. The brightness and sharpness are automatically adjusted.

3b) If you want to highlight only an area of a window, click on the left mouse button and drag the cursor over the area to be highlighted while holding the mouse button. A rectangle forms around the area. When the area is encompassed by the rectangle, release the mouse button and the area becomes highlighted.

How to Deactivate LightFrame™

To deactivate, click on the LightFrame™ icon in the System Tray of the Taskbar. The light in the middle of the icon turns gray and LightFrame™ is deactivated.

Note

If a highlighted window is closed before LightFrame™ is deactivated, LightFrame™ is automatically deactivated.

Right-Click Features

On the LightFrame™ icon in the taskbar, click the right-side mouse button to bring up a menu from which you can select:

About...which tells you something about LightFrame™

Help which takes you to the Help screen where you can find additional information

Exit which exits the LightFrame™ Program.

If you select exit and the color in the center of the icon is green, it will turn gray and LightFrame™ is deactivated. If you select exit an Exit message appears asking you if are sure you want to exit. Select "Yes" to exit or “No” to abort the exit. If you select Yes, you can always restart LightFrame™ by clicking on the desktop shortcut icon.

LightFrame™ is Suspended When . . .

Screensaver, Sleep mode, Deep Sleep (Power Off) mode is Activated

LightFrame™ goes into the Suspended mode as soon as a screensaver becomes active on your computer. This is true even though the monitor icon may still have a green center. LightFrame™ becomes active again as soon as the screen is reawakened and the screensaver quits.

The same is true when the computer goes into Sleep mode or Deep Sleep (Power Off) mode. LightFrame™ goes into Suspended mode and reawakens when the monitor is reawakened.

Screen or Area is Minimized

LightFrame™ suspends when a highlighted window is minimized. LightFrame™ reactivates when the highlighted window is again maximized or restored to its previous size.

Another Window or Area Overlaps Highlighted Window or Area

LightFrame™ suspends if a window that is not highlighted overlaps a highlighted window. LightFrame™ reactivates once the highlighted window is again on top.

Miscellaneous

Monitor Turned Off

If the monitor is “hard powered off” while a window or area is highlighted and then hard powered on again, LightFrame™ is no longer active. The icon may still show the feature as still active. In this case, you have to exit LightFrame™ and restart it via the icon on the desktop or the Start menu.

If the Monitor is Detached and Another Monitor is Attached

If the monitor is detached from the computer while a highlighted window or area is displayed and then another monitor is attached, the system will have to be rebooted so that Philips’ LightFrame™ can detect the monitor’s LightFrame™ capabilities and store the setup information about the new monitor. If the monitor is not LightFrame™ capable, an Error message appears. See Error Message 2 under the heading Error Messages. You can abort or continue the set up. However, if you continue, LightFrame™ may not work with the monitor.

Error Messages

You may see this message when you install LightFrame™.

Error Message 1 dialog box here

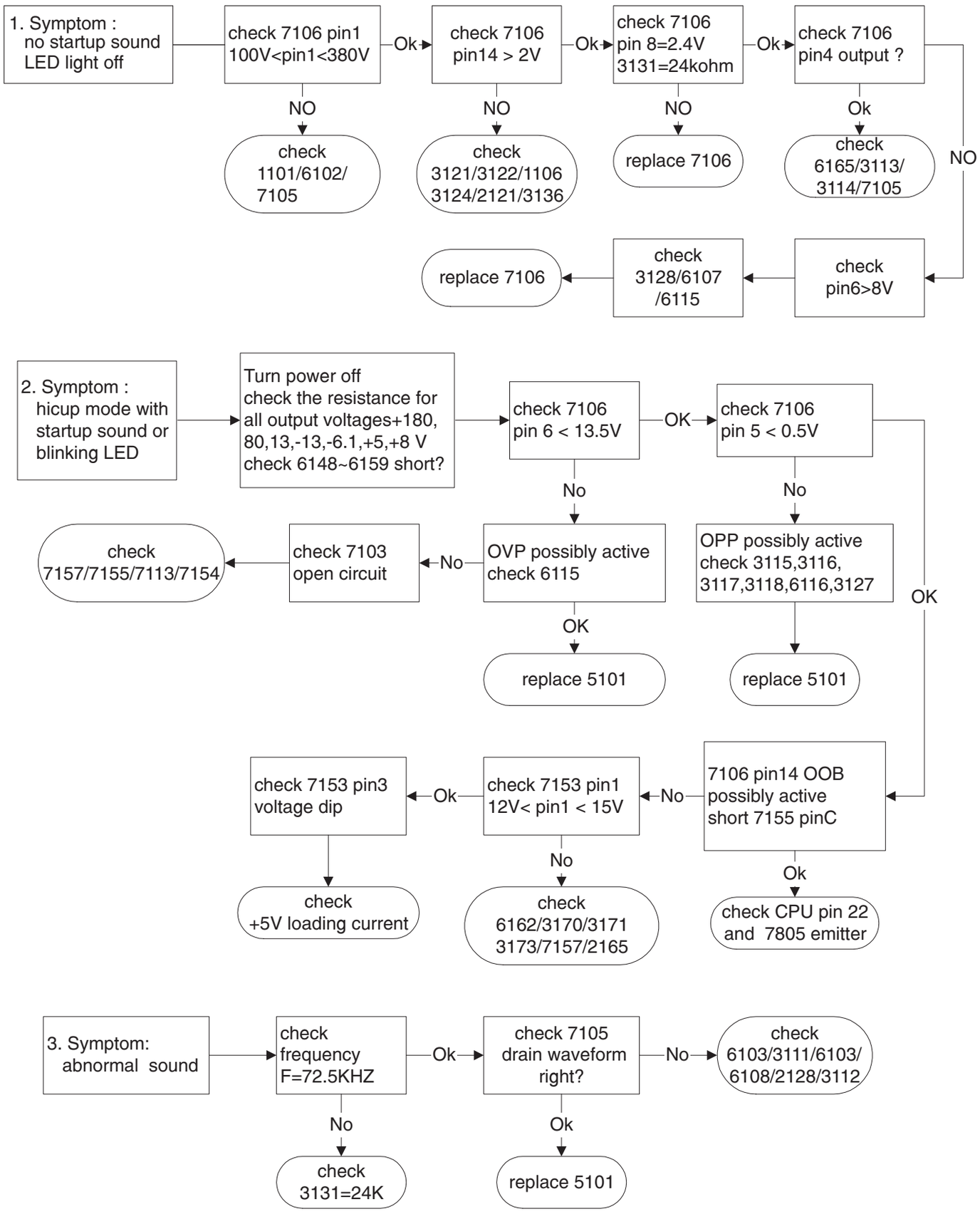
LightFrame™ cannot detect a monitor which supports this feature. You can still proceed with the software installation but LightFrame™ might not run on your system.
You may see this message when you try to switch monitors.

Error Message 2 dialog box here

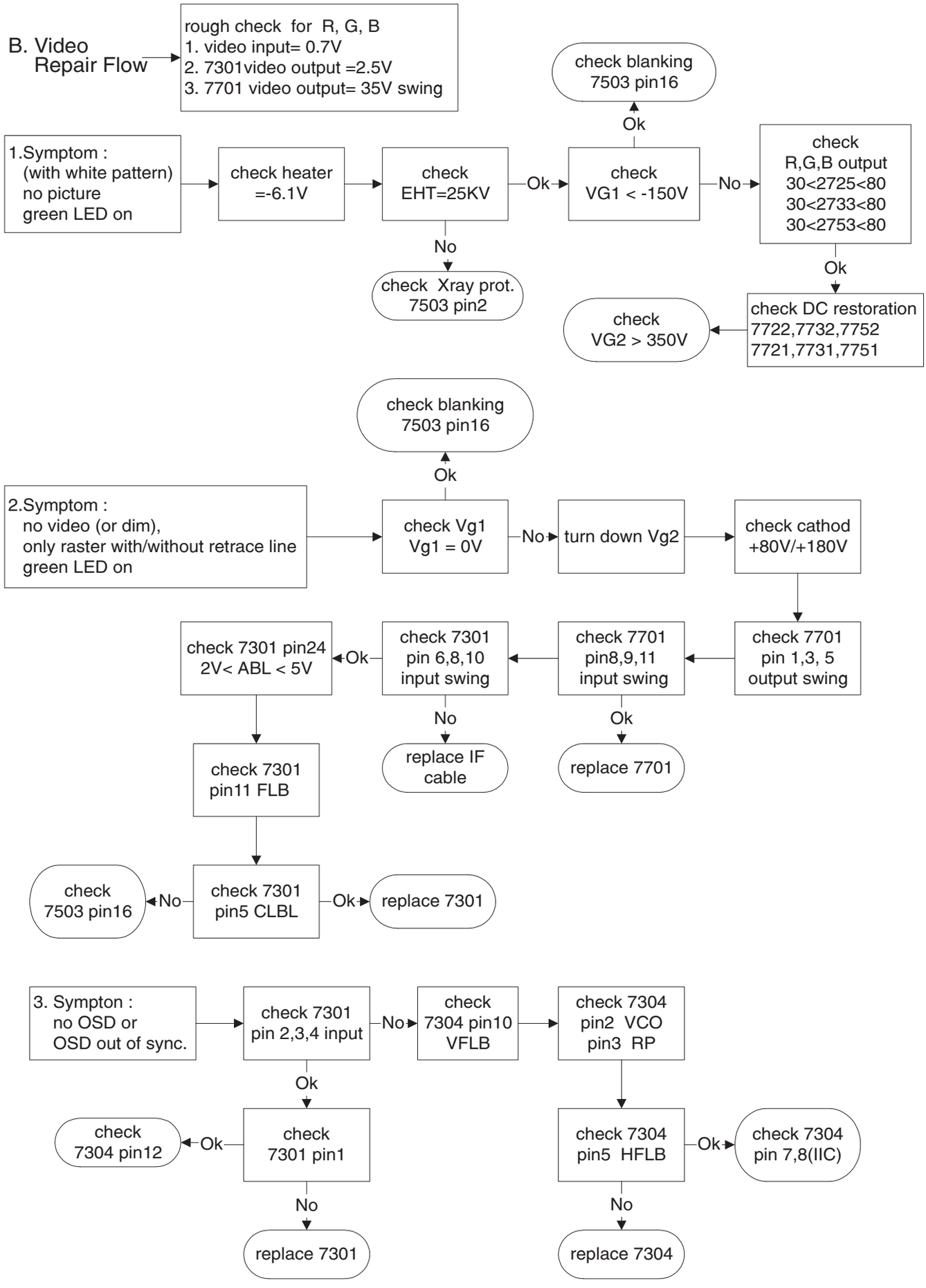
LightFrame™ cannot detect a monitor which supports this feature. You can still start the software but LightFrame™ may not work.

Repair Flow Chart

A. Power Supply Failure

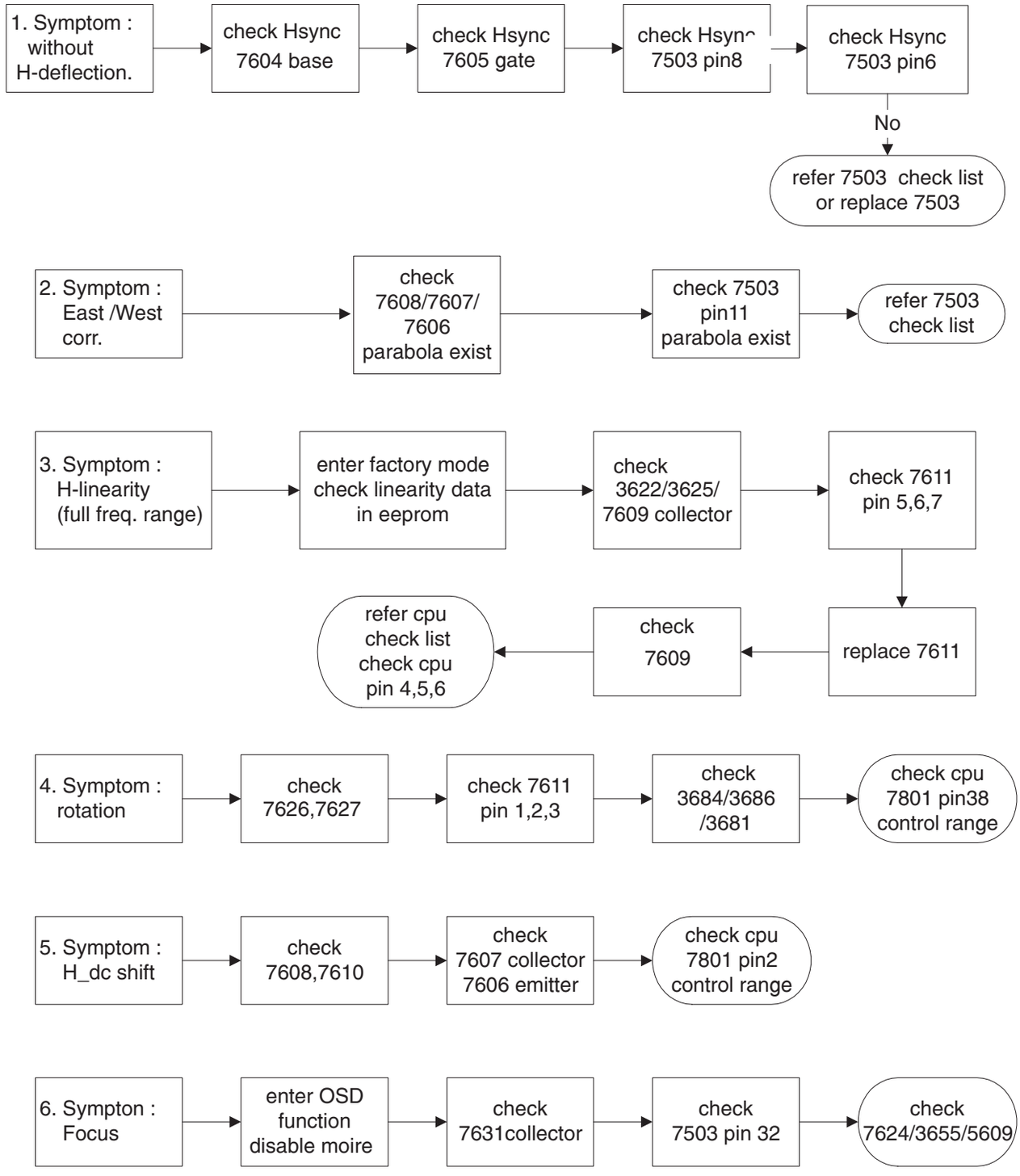


Repair Flow Chart (Continued)

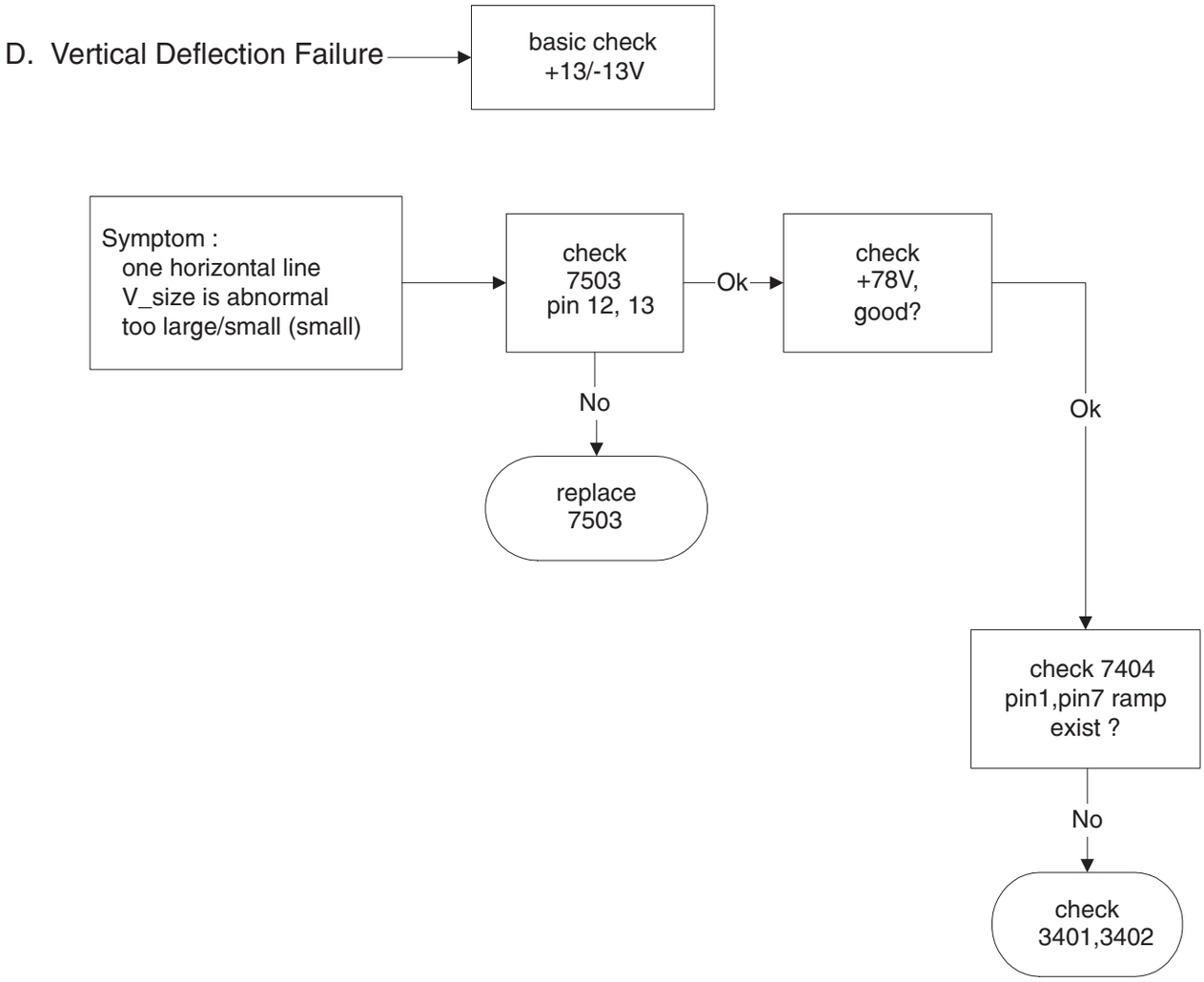


Repair Flow Chart (Continued)

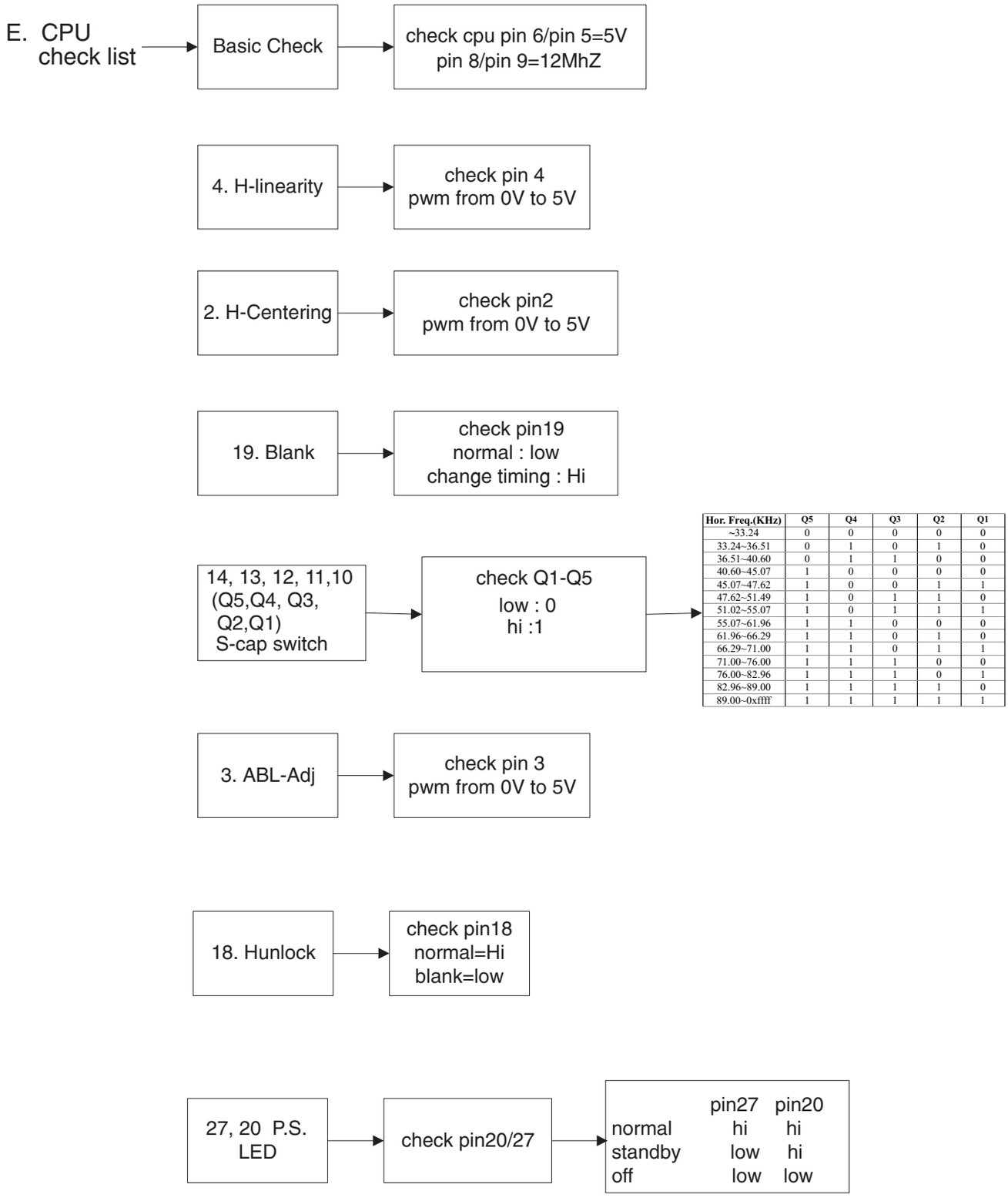
C. Horizontal deflection output repair flow :



Repair Flow Chart (Continued)

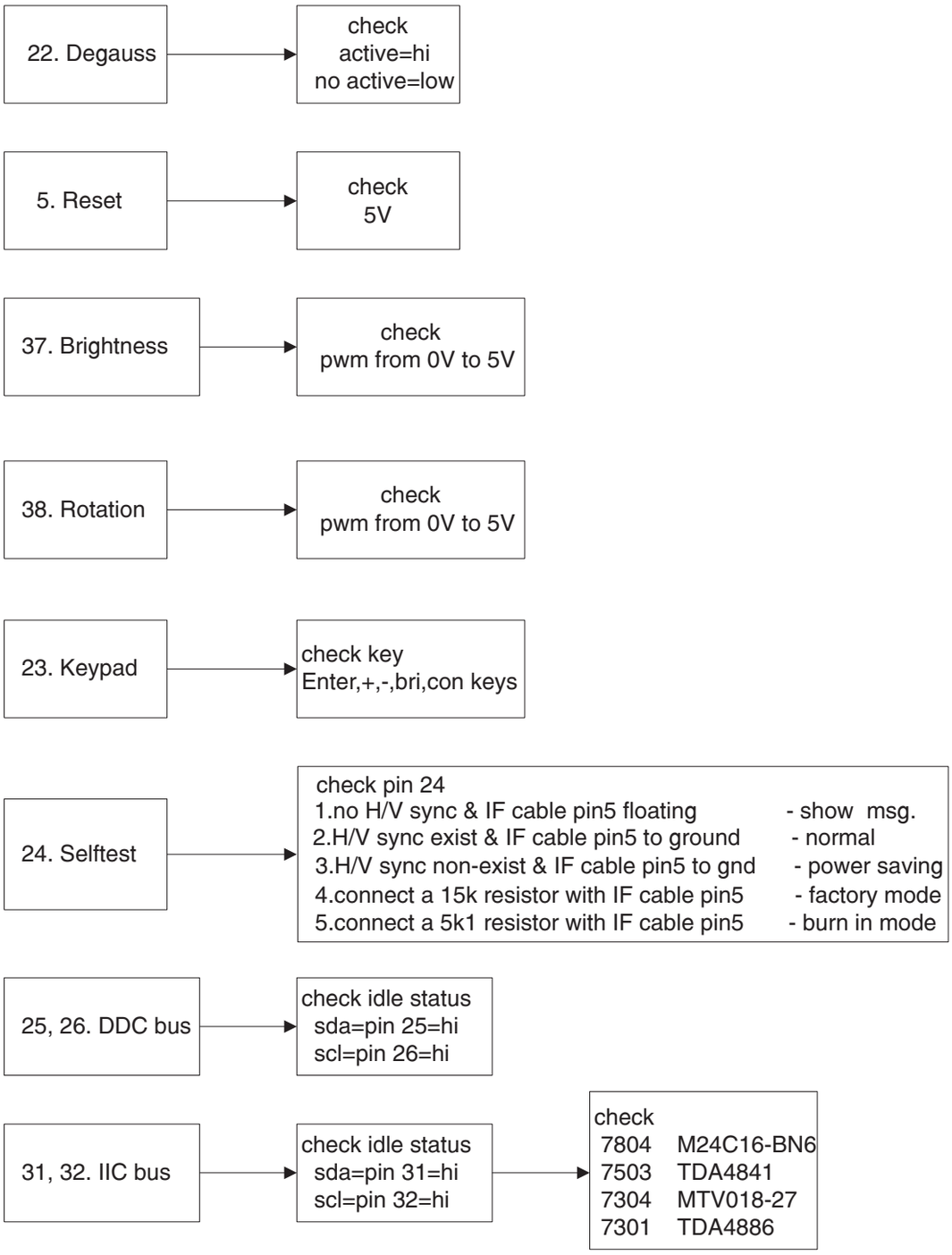


Repair Flow Chart (Continued)



Hor. Freq.(KHz)	Q5	Q4	Q3	Q2	Q1
~33.24	0	0	0	0	0
33.24~36.51	0	1	0	1	0
36.51~40.60	0	1	1	0	0
40.60~45.07	1	0	0	0	0
45.07~47.62	1	0	0	1	1
47.62~51.49	1	0	1	1	0
51.02~55.07	1	0	1	1	1
55.07~61.96	1	1	0	0	0
61.96~66.29	1	1	0	1	0
66.29~71.00	1	1	0	1	1
71.00~76.00	1	1	1	0	0
76.00~82.96	1	1	1	0	1
82.96~89.00	1	1	1	1	0
89.00~0xffff	1	1	1	1	1

Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

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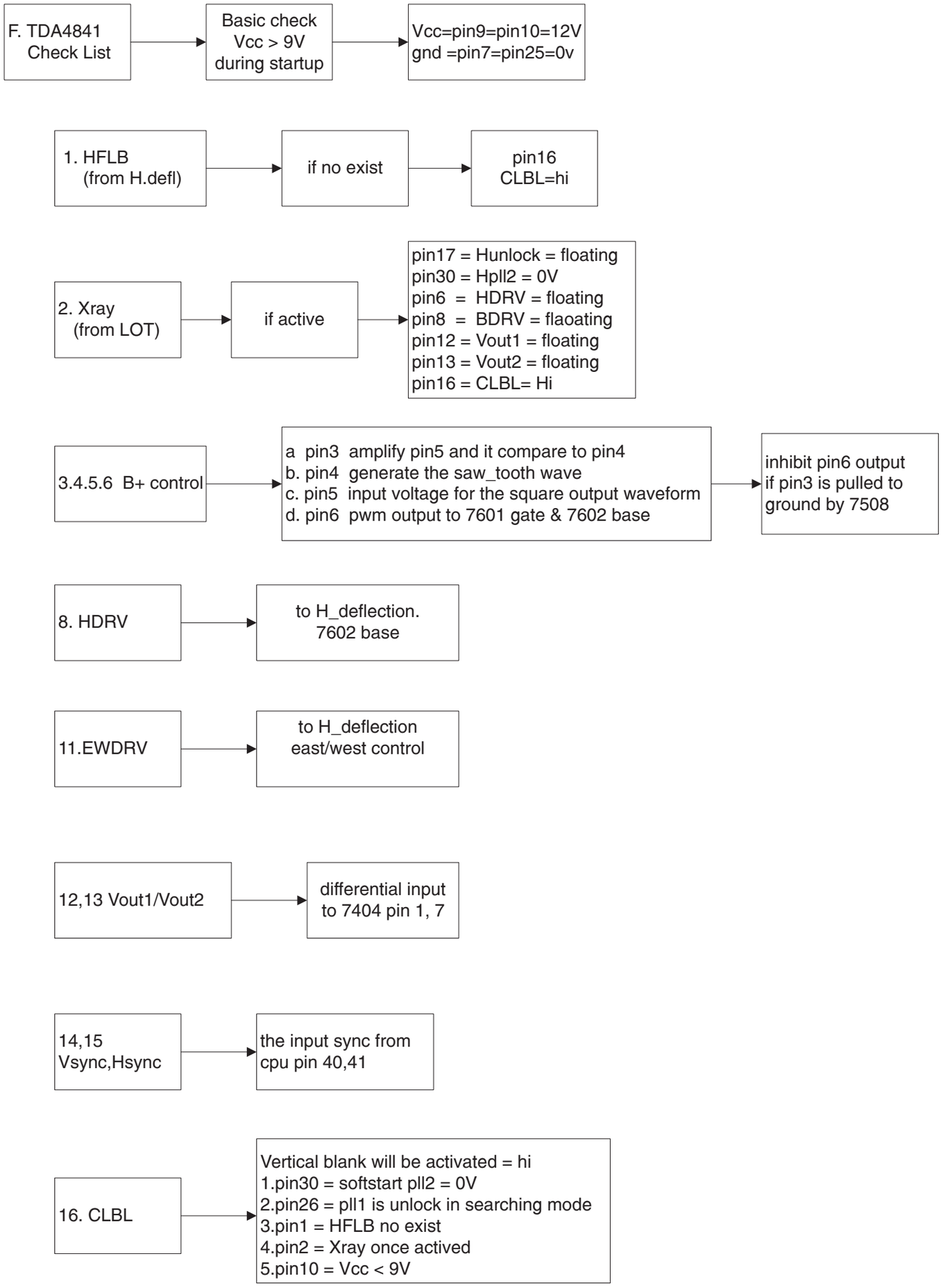
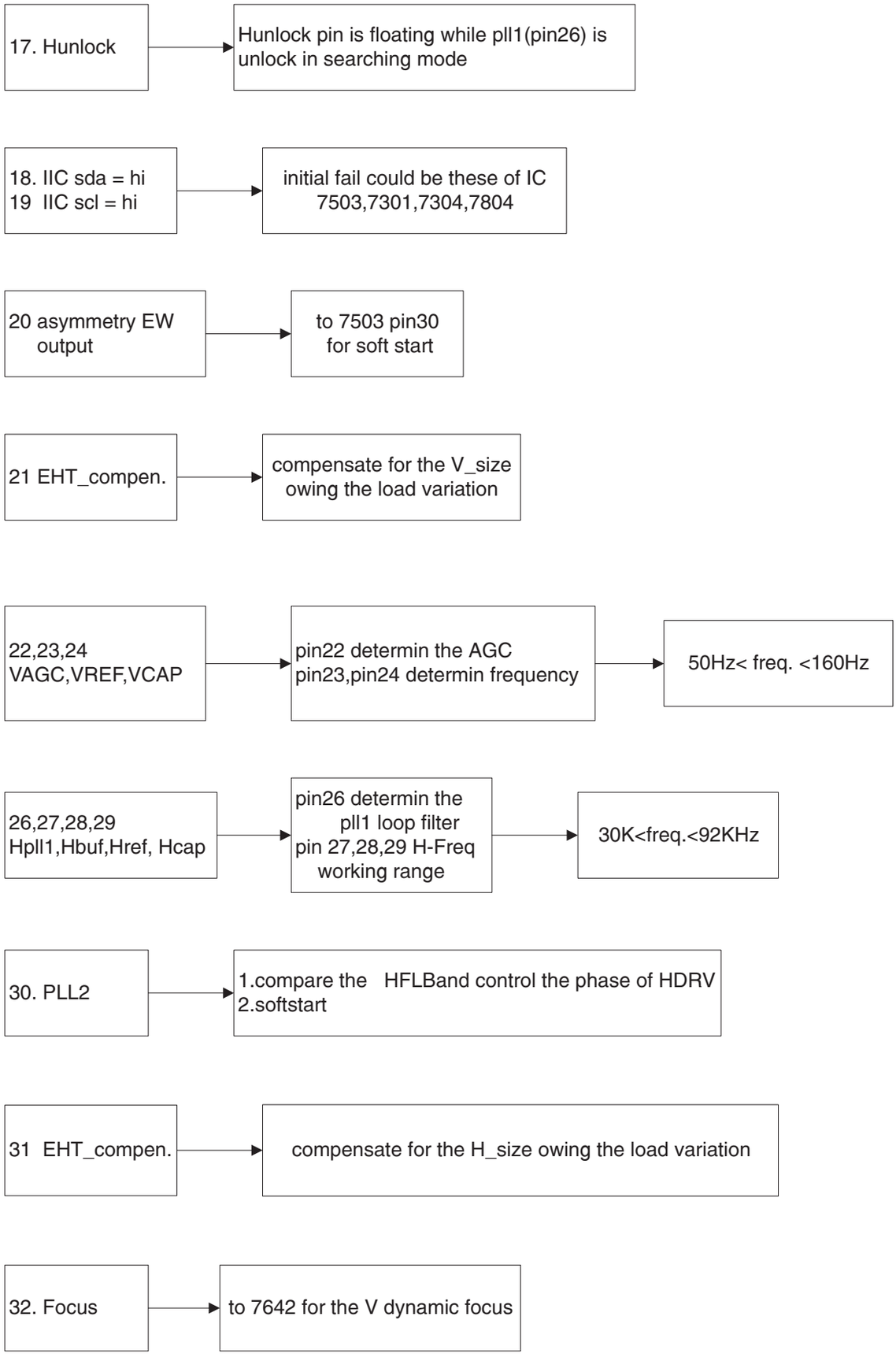


Back Forward

Repair Flow Chart (Continued)



PHILIPS

CM25 - 107P2 General Specification (Sheet 590)

FEATURES / BENEFITS

- Extremely high MTBF (over 75K Hours, exclude. CRT).

- User friendly OSD display for mode identification and adjustment

- Professional look, with non-flammable cabinet (94V-0).

- Better display performance.
  . Super Flat/square display tube
  . Finer CRT dot pitch (0.25 mm)
  . Full screen size application
  . Real multi - freq.

- Power saving management system.

- VESA DDC1 /2B

- Picture tilt control

  - Low emission TCO99

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS		8639 000 10649					
00-06-07								
NAME K.C. Huang	SUPERS.	23	590 — 1	10		A4		
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

2838 100 05424

General Product Specification

INDEX
=========

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS			8639 000 10649					
00-06-07									
NAME K.C. Huang	SUPERS.	23	590 — 2	10		A4			
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.							

2838 100 05424

PHILIPS

CLASS NO.	CM25-17" 107P2 92KHz AR CRT	8639 000 10649					
	TYPE : 107P20/00H						
00-06-07	BRAND : PHILIPS						
NAME K.C. Huang	SUPERS.	23	590 — 3	10		A4	
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424

GENERAL PRODUCT SPECIFICATION

PHILIPS

1.0 Introduction

This document is related to the 17" AUTOSCAN color monitor
and max. resolution:
1920 X 1440 by 60Hz refresh rate

2.0 General description

This AUTOSCAN analog colour monitor is specified as a display peripheral within an IBM compatible PC.

The AUTOSCAN analog colour monitor is to operate at
H: 30 to 92.0 KHz V: 50 to 160 Hz
can be applied to all RGB analog computers within this scanning frequencies.

The AUTOSCAN analog colour monitor is intended to be a finished product, basically a display device mounted inside a plastic enclosure which provides the aesthetic, mechanical, ergonomic and safety requirements.

2.1 General condition

The unit will produce a usable image after switching-on, measurements are to be carried out with a full stabilized set after about 30 minutes warm-up at room ambient temperature of 25°C.
Repetitive power on/off cycles are allowed though should be avoided within 4 sec.

3.0 Electrical characteristics

3.1 Signal interface

This AUTOSCAN analog colour display has an analog video interface to operates at a multi-frequencies timing in several display modes.

3.1.1 Input requirements

A. Input signals

Video - 0.7 Vp-p 75 ohms (for individual of R,G and B signals must not deviate 0.015 Vp-p from each other for balance of white pattern)

Sync - TTL level
(between 0 and 0.6 V to be considered as low level, between 2.3 and 5.0 V as high level)

B. Impedance

Video - Terminated with 75 ohms
Sync - Terminated with 4.7K ohms pull-down resistors.

CLASS NO.	CM25-17" 107P2 92KHz AR CRT			8639 000 10649				
	TYPE : 107P20/00H							
00-06-07	BRAND : PHILIPS							
NAME K.C. Huang	SUPERS.	23	590 — 4	10		A4		
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

2838 100 05424

3.1.2 Signals input

The input video signals are applied to the display device through a video cable which is fixed to the monitor (flying cable length 1.5M).

Video input cable :
15 pin D-shell connector type with pin assignment as follows :

Pin assignment of 15P D-SUB connector

Pin No.	Assignment
P 1	Red video input
P 2	Green video input
P 3	Blue video input
P 4	Ground
P 5	GND
P 6	Red video ground
P 7	Green video ground
P 8	Blue video ground
P 9	Not connect
P10	Ground
P11	Ground
P12	Bi-directional data (SDA)
P13	H SYNC
P14	V SYNC
P15	DDC Data CLOCK (SCL)

3.1.3 Factory pre-set modes:

PRESET VIDEO RESOLUTION AND SYNC. POLARITIES

	Resolution modes	H. freq.	V. freq.	H.	V.
1.	640 x 350	31.5 Khz	70 HZ(VESA)	-	+
2.	640 x 400	31.5 Khz	70 HZ(VESA)	-	+
3.	640 x 480	43.2 Khz	85 HZ(VESA)	-	-
4.	800 x 600	46.9 Khz	75 HZ(VESA)	+	+
5.	800 x 600	53.7 Khz	85 HZ(VESA)	+	+
6.	1024 x 768	60.0 Khz	75 HZ(VESA)	+	+
7	1024 x 768	68.7 Khz	85 HZ(VESA)	+	+
8.	1280 x 1024	80.0 Khz	75 Hz (VESA)	+	+
9.	1280 x 1024	91.1 Khz	85 Hz (VESA)	+	+

3 .2 Timing requirements

The pre-set timing table are shown as below
Timing Table : 1 - 9

PHILIPS

TIMING FOR 107P2 17" FLAT AUTOSCAN COLOR MONITOR

REFERENCE PATTERN GENERATOR : CHROMA 2250

TABLE 1: 31.469 KHz/70Hz, 640 X 350, pixel=25.175 MHz

Horizontal			Vertical		
Frame border	=	0	Frame border	=	0
Total size	=	31.778 µs	Total size	=	14.286 ms
Display size	=	25.422 µs	Display size	=	11.122 ms
Rear porch	=	1.907 µs	Rear porch	=	1.907 ms
Sync width	=	3.813 µs	Sync width	=	0.064 ms
Sync polarity	=	–	Sync polarity	=	+

TABLE 2: 31.469 KHz/69.930Hz, 640 X 400, pixel=25.175 MHz

Horizontal			Vertical		
Frame border	=	0	Frame border	=	0
Total size	=	31.778 µs	Total size	=	14.300 ms
Display size	=	25.422 µs	Display size	=	12.711 ms
Rear porch	=	1.907 µs	Rear porch	=	1.144 ms
Sync width	=	3.813 µs	Sync width	=	0.064 ms
Sync polarity	=	–	Sync polarity	=	+

TABLE 3: 43.269 KHz/85.008Hz, 640 X 480, pixel=36.000 MHz

Horizontal			Vertical		
Frame border	=	0	Frame border	=	0
Total size	=	23.111 µs	Total size	=	11.764 ms
Display size	=	17.778 µs	Display size	=	11.093 ms
Rear porch	=	2.222 µs	Rear porch	=	0.578 ms
Sync width	=	1.556 µs	Sync width	=	0.069 ms
Sync polarity	=	–	Sync polarity	=	–

TABLE 4: 46.875KHz/75.000Hz, 800 X 600, pixel=49.500MHz

Horizontal			Vertical		
Frame border	=	0	Frame border	=	0
Total size	=	21.333 us	Total size	=	13.333 ms
Display size	=	16.162 us	Display size	=	12.800 ms
Rear porch	=	3.232 us	Rear porch	=	0.448 ms
Sync width	=	1.616 us	Sync width	=	0.064 ms
Sync polarity	=	+	Sync polarity	=	+

TABLE 5: 53.674KHz/85.061Hz, 800 X 600, pixel=56.250MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 18.631 us	Total size	= 11.756 ms
Display size	= 14.222 us	Display size	= 11.179 ms
Rear porch	= 2.702 us	Rear porch	= 0.503 ms
Sync width	= 1.138 us	Sync width	= 0.056 ms
Sync polarity	= +	Sync polarity	= +

TABLE 6: 60.023KHz/75.029Hz, 1024 X 768, pixel=78.750MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 16.660 us	Total size	= 13.328 ms
Display size	= 13.003 us	Display size	= 12.795 ms
Rear porch	= 2.235 us	Rear porch	= 0.466 ms
Sync width	= 1.219 us	Sync width	= 0.050 ms
Sync. polarity	= +	Sync. polarity	= +

TABLE 7: 68.677KHz/84.997Hz, 1024 X 768, pixel=94.500 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 14.561 us	Total size	= 11.765 ms
Display size	= 10.836 us	Display size	= 11.183 ms
Rear porch	= 2.201 us	Rear porch	= 0.524 ms
Sync width	= 1.016 us	Sync width	= 0.044 ms
Sync polarity	= +	Sync polarity	= +

TABLE 8: 79.976KHz/75.025Hz, 1280 X 1024, pixel=135.00MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 12.504 us	Total size	= 13.329 ms
Display size	= 9.481 us	Display size	= 12.804 ms
Rear porch	= 1.837 us	Rear porch	= 0.475 ms
Sync width	= 1.067 us	Sync width	= 0.038 ms
Sync polarity	= +	Sync polarity	= +

TABLE 9 :91.146 KHz/85.024Hz, 1280 X 1024, pixel=157.500 MHz

Horizontal			Vertical		
Frame border	=	0	Frame border	=	0
Total size	=	10.971 µs	Total size	=	11.761 ms
Display size	=	8.127 µs	Display size	=	11.234 ms
Rear porch	=	1.422 µs	Rear porch	=	0.483 ms
Sync width	=	1.016 µs	Sync width	=	0.033 ms
Sync polarity	=	+	Sync polarity	=	+

3.2.1 Horizontal scanning

Scanning frequency : 30 - 92.0 KHz,
H-shift range : 20 mm min.
Retrace time : Typical 2.30 us.

3.2.2 Vertical scanning

Scanning frequency : 50 - 160 Hz
V-shift range : 10 mm Min.

3.3 Power supply

The display device maintains the specified performance in the range described as below :

Type	Mains current	Mains Voltage	Mains freq.
	1.8A max.	90 - 264 VAC	47-63Hz

Power consumption : 110 Watts Max.
Power cord length : 1.5M
Power cord type : 3 leads detachable power cord with protective earth plug .

3.4 Power saving management system

MODE	SIGNAL			POWER	RECOVERY TIME
	H-SYNC	V-SYNC	VIDEO		
ON	ACTIVE	ACTIVE	ACTIVE	< 110W	NA
STAND-BY	INACTIVE	ACTIVE	BLANKED	< 15W	~ 3 SEC.
SUSPEND	ACTIVE	INACTIVE	BLANKED	< 15W	~ 3 SEC.
OFF	INACTIVE	INACTIVE	BLANKED	< 3W	~ 7 SEC

3.5 CRT Description

This display unit employs a high resolution CRT complying with the following specifications :

Type : M41LRY31X21
Dimensions : 17 inches
Super flat/square screen.
Pitch : 0.25mm dotted
Deflection angle : 90 degrees
Light transmission : 38%
Face treatment : AR film
Implosion protection : CRT is provided with P-mini-rim-band
EHT : 25 KV
Visible screen area : 325 mm x 244 mm

3.6 RGB Amplifier

3.6.1 Video amplifiers

Dot Rate : 202.5 MHz
Over / undershoot : 10% Max. (Transient response)
Sag (background uniformity) : 5% Max. (pulses of 0.70H)

3.6.2 Brightness and contrast

Reference mode 68.7K/85Hz full white pattern at 9300K.

Brightness	Contrast	Light output (full white)
Minimum	Minimum	< 0.5 FL
Center	Maximum	31 +5 -3FL

GENERAL PRODUCT SPECIFICATION

PHILIPS

3.7 Variation of image size

Due to brightness change
from 3 to 30 FL (Max.) : < 1.0 %

Due to aging
(0 to 40 °C) : < 1.0 %

Due to mains voltage
variation : < 1.0 %

3.8 Degaussing

An automatic degaussing circuit is provided which requires no intervention. The degaussing activated at the time of switch-on or switch-on again or pressing manual degaussing key after switching-off degaussing circuits for longer than 30 minutes.

3.9 Phosphor protection
The display device is sufficiently protected against the burning of phosphors in case of repetitive power cycling or absence of horizontal deflection.

3.10 Low emission requirements (MPRII, TCO95, TCO99)

Items	Band I ELF (rms)	Band II VLF (rms)
Alternating Electric Field	MPR-II ≤ 25 V/M TCO-95/99≤10	MPR-II ≤ 2.5V/M TCO-95/99≤1.0
Magnetic Field	MPR-II ≤ 250 nT TCO -95/99≤ 200 nT	MPR-II ≤ 25 nT TCO-95/99≤25 nT
E.S.P	≤ ± 500 V	

Band I : 5 to 2K Hz.
Band II : 2K to 400K Hz.
Test procedure according to Low emission test method.

3.11 Display data channel : DDC1/2B (VESA STANDARD)

The DDC HEX Data should be written into DDC memory inside the IC (7804 by EEPROM writer or equivalent method.

4.0 Display image (CRT facing east)

The monitor is aligned in a magnetic cage having the following magnetic field components :

Northern Hemisphere : H = 0, V = +0.43 ± 0.05G, Z = 0

Southern Hemisphere : H = 0, V = -0.52 ± 0.05G, Z = 0

Conditions for visual testing, unless otherwise stated:

Input video signal	- 700 mVp-p cross hatch
Brightness control	- 50%
Contrast control	- Adjusted to 31+5 -3FL of luminance with full white pattern

4.1 Display resolutions

See 3.1.3

4.2 Image size (Factory pre-set modes only)

The dimensions of guaranteed display area to be measured along the picture center of horizontal and vertical axis of the screen as listed below: (preset modes only, refer to fig. 1/fig 2)

Width : 306 +/ - 3 mm .(fig 1)

Height : 230 +/ - 3 mm .(fig 1)

4.3 Image centering deviation (Factory preset modes only)

With respect to fig. 2, the target relationships are the following :

|A - B| <= 5 mm |C - D| <=5 mm

Note : This centering is adjustable by the end-user.

4.4 Picture shift control range

H-shift range : 20 mm min. (+/- 5mm,from center to each side)
V-shift range : 10 mm min. (+/- 2mm,from center to each side)

4.5 Picture tilt

With respect to Fig. 3, Tilt to be measured on extremes of center line from bezel.

Tilt : < = 2 mm

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4.6 Geometric distortions

It is acceptable that pincushion, trapezoid, r homboid, rotation and various waves distortions must remain within the limits of tolerance as in fig. 4,

|A| , |B|	2.0mm
|C| , |D|	2.0mm

The waviness of any vertical or horizont al shall be less than 1.0 mm over a 50 mm distance.

4.7 Image non-linearity pattern with
10 equal blocks along horizontal axis,
8 equal blocks along vertical axis.

Overall : ≦ 5% (each horizontal and vertical)
: ≦ 6 % (VGA)
Deviation of Two adjacent : ≦ 3 % (Adjacent block)
≦ 3.5 % (VGA)

$$\text{H. linearity} = \frac{Xmax. - Xmin}{Xma x. + Xmin} \times 100\%$$

$$\text{V. linearity} = \frac{Ymax. - Ymin}{Ymax. + Ymin} \times 100\%$$

4.8 Mis-convergence
The maximum convergence error to be measured on a white spot or white display line to represents the maximum distance between the energy centers of any two primary colors. (See Fig. 6)
Mis-Convergence SPEC.

CRT Pitch	0.25mm
Zone A	0.15
Zone B	0.25
Zone C	0.35

4.9 Focus check (with 68.7K/85Hz,1024 x 768 mode)

Generate "@" characters (pattern as fig 7) to cover entire of the picture area (display size respect to fig. 1), adjust brightness control to 50% and contrast control to obtain 25 FL @ 5 -block pattern, the characters should be clearly identified in all display area.

4.10 Luminance uniformity

condition : With full white pattern, set contrast control at max. and adjust brightness control to get 30FL in center
the max. deviation to the rest of the s creen shall not exceed 25% of entire screen with any point.

4.11 White color adjustment

Based on the 1931 CIE chromaticity (colour triangle) diagram (x,y coordination). coordination of white display on screen center should be:

for 9300 degreeK	X = 0.283	+/- 0.015
	Y = 0.297	+/ - 0.015
for 6500 degreeK	X = 0.313	+/- 0.015
	Y = 0.329	+/ - 0.015
for 5500 degreeK	X = 0.332	+/- 0.015
	Y = 0.347	+/ - 0.015

Check conditions :
Set brightness control at 50% position and contrast at maximum.

4.12 Color tracking on full white pattern

Ref. to white balance alignment result and set brightness at 50%, adjust contrast control from 5FL to max. position, the colour coordinate should not deviate more than following tolerance when compare to display center:

X= X nominal +/- 0.015
Y= Y nominal +/- 0.015

4.13 Purity
Test patterns : Full White / Red / Green / Blue.
Conditions:As stated in item 4.0, the purity must be checked under specific destinations of earth magnetic environments and the monitor to be well degaussed.
After warming -up time of 30 min., no coloured stains may occur in above four patterns.

4.14 Moire
Condition: Displaying a full white pattern , at any pre-set mode the display size of the set s to be set as stated in "Fig. 1".
Moire area should be less than 1/3 area @15FL via moire control.
However the OSD moire data of V-moire should have a default value (mode dependent) for product outgoing .Increasing the moire control value will have side effect on resolution (degrade focus),and phenomenon of flicker and sawtooth.

5.0 Mechanical characteristics

5.1 User controls (all at front) Right to left
- Power ON/OFF
- OSD Menu
- Up (Brightness)
- Down (Brightness)
- Right (Contrast)
- Left (Contrast)

GENERAL PRODUCT SPECIFICATION

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6 .0 Connectors and cables

6.1.1 Power cord (plugable) type : Wall Plug ,non shielded and non-attached.

Length : 1.5 m +/ - 50 mm . Plug curved at 90°.

6.1.2 Signal cable

Length of video : 1.5 m +/ - 50 mm flying in 15pins D-shell.

7.0 Environmental characteristics

The following sections to define the interfe rence and susceptibility condition limits that might occur between external environment and the display device.

7.1 Susceptibility of display to external environment

7.1.1 Operating limits

A). Temperature : 0 °C to 35°C
Humidity : 10 to 90% (W/O condensation)
Air pressure : 700 ~ 1100 mbar

B). Non-operating limits (storage)
Temper ature : -25°C to 65°C
Humidity : 10 to 90 % (W/O condensation)
Altitude : 300 to 1100 mbar

7.1.2 Transportation packages

A) Carton box (inside dimension)
: 496(W) x 520 (H) x 556 (D) mm.

B) Transportation conditions

(see table, shown as below)

CLASS NO.	CM25-17" 107P2 92KHz AR CRT	8639 000 10649				
	TYPE : 107P20/00H					
00-06-07	BRAND : PHILIPS					
NAME K.C. Huang	SUPERS.	23	590 — 14	10		A4
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.				

2838 100 05424

B-1 Transportation standards

TEST	Standard reference	Philips severity	Remarks
Drop 1C-3E-6F	NSTA	Gross weight (Kg): 20 Drop height (cm): 61	*W/O 10% drop height increment
Random vibration		Truck spectrum, 0.73 Grms, 30 min/axis, 3 axes	
Shock (non-oper)		- 1/2 sine pulse: 100G<3ms, 6 shocks - Square pulse: 35G, 4.2mps, 6 shocks for screen size up to 15", 30G for ≥ 17" mointor. - Damage boundary curve: * CRT supplier spec. is used to define maximum acceptable CRT fragility.	Design stage only.

B-2 Container loading

Q'ty	Container size					
	40Feet W/Pallet		20Feet W/Pallet		High cube 40 Feet W/Pallet	
	Yes	No	Yes	No	Yes	No
Layers	4	4	4	4	4	4
Sets per layer	4	4	4	4	4	4
Sets per block	16	16	16	16	16	16
Blocks per container	24	24	10	10	24	24
Tota l set	384	384	160	160	384	384

7.2 Display disturbances from external environment

7.2.1 ESD Disturbances
According to IEC65 (also refer to IEC801 -2 for detail).

7.3 Display disturbances to external environment

The disturbances induced by the display and tolerated by the environment are defined as follows :

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7.3.1 Ionizetic radiation

Completely fulfilled International Commission of Radio logical Protection (ICRP) requirement 0.5 mr/hrs. Actually the set can reach 0.1 mr/hrs.

7.3.2 Safety and EMI requirements

Safety - (To be decided)

EMI - (To be decided)

EMS -(To be decided)

LOW EMISSION :TCO99

7.3.3 X-RAY radiation requirement /regulation

-USA/CANADA :DHHS 21 CFR, CHAPTER 1,SUBCHAPTER J
-GERMANY :RONTGEN VERORDNUNG ROV 1987.01.08

X-ray explosure at 5cm distance from any point of the external surface must not exceed 0.1 mR/H.

8.0 Reliabilit y

8.1 Mean time between failures

MTBF to be calculated according to Military standard MIL-HDBK-217C.

MTBF >=75,000 Hours (Excluding CRT)

$$\text{PRACTICE of MTBF} = \frac{\text{TOTAL HRS (POWER ON) X TOTAL SETS}}{\text{NBR. OF FAILURED SETS}}$$

9.0 Quality assurance requirements

9.1 Acceptance test

According to MIL-STD-105D level II,
AQL : 0.65 (Major)
2.5 (Minor)

Customer acceptance :
criteria : UAW0377/00

10.0 Serviceability

The service ability of this monitor should fulfill the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

CLASS NO.	CM25-17" 107P2 92KHz AR CRT	8639 000 10649					
	TYPE : 107P20/00H						
00-06-07	BRAND : PHILIPS						
NAME K.C. Huang	SUPERS.	23	590 — 16	10		A4	
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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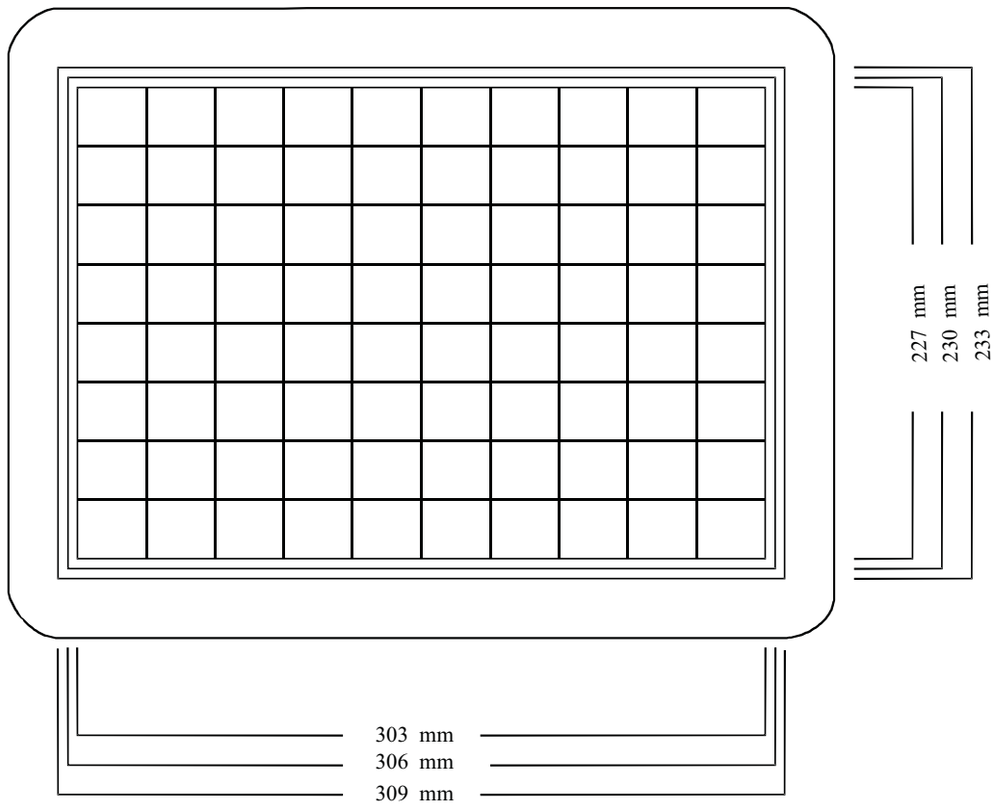

FIG-1 IMAGE DIMENSION

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS		8639 000 10649				
00-06-07							
NAME K.C. Huang	SUPERS.	23	590 — 17	10		A4	
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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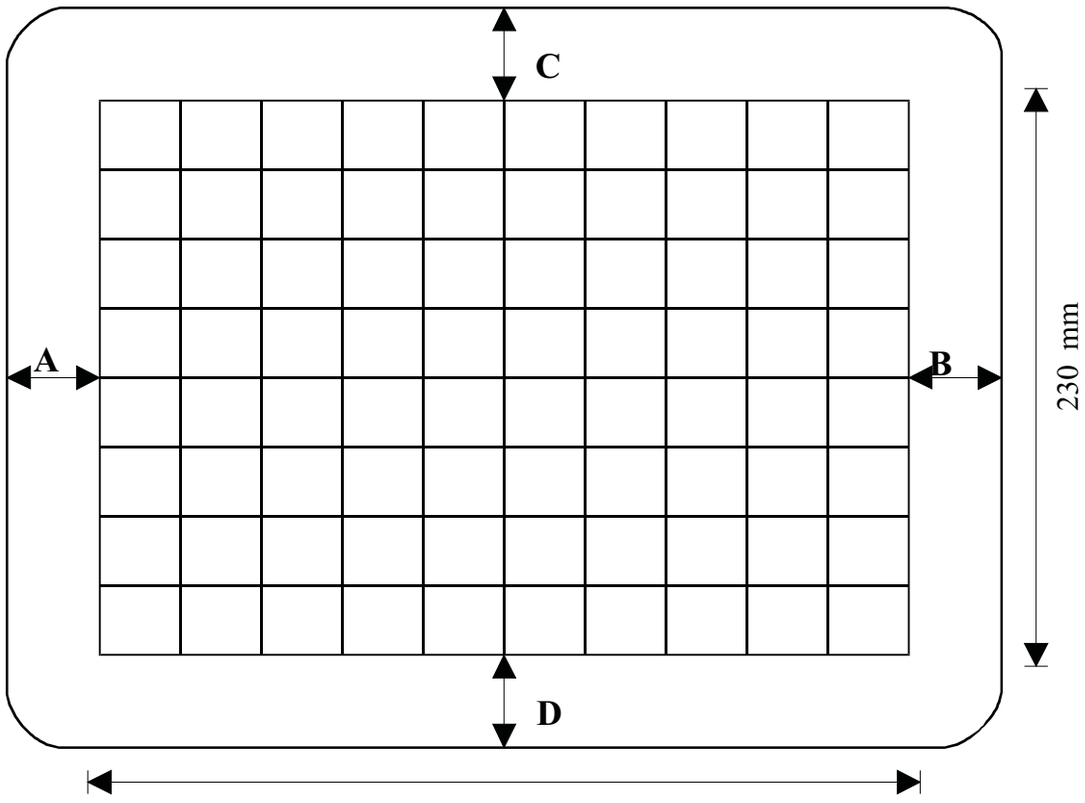
PHILIPS



|A-B| AND |C-D| < 5 mm

FIG-2 IMAGE CENTERING

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS			8639 000 10649			
00-06-07							
NAME K.C. Huang	SUPERS.	23	590 — 18	10		A4	
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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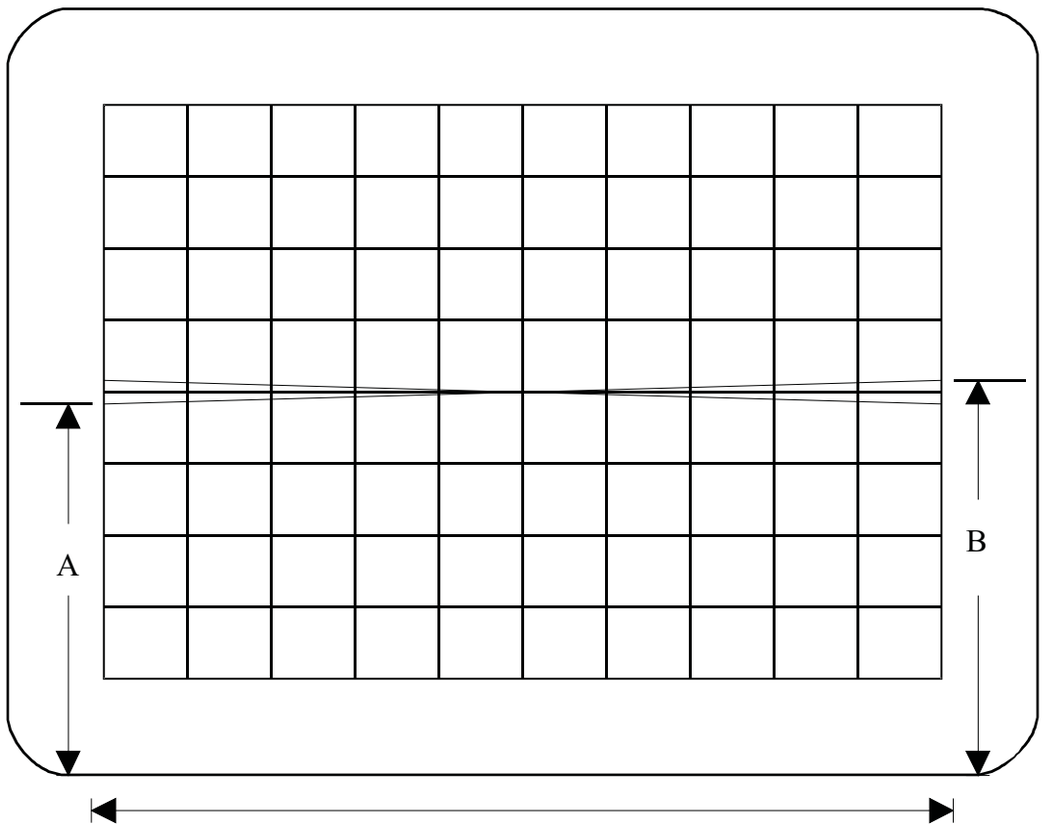

|A-B| < 2 mm

FIG-3 IMAGE ROTATION

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS		8639 000 10649		
00-06-07					
NAME K.C. Huang	SUPERS.	23	590 — 19	10	A4
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.			

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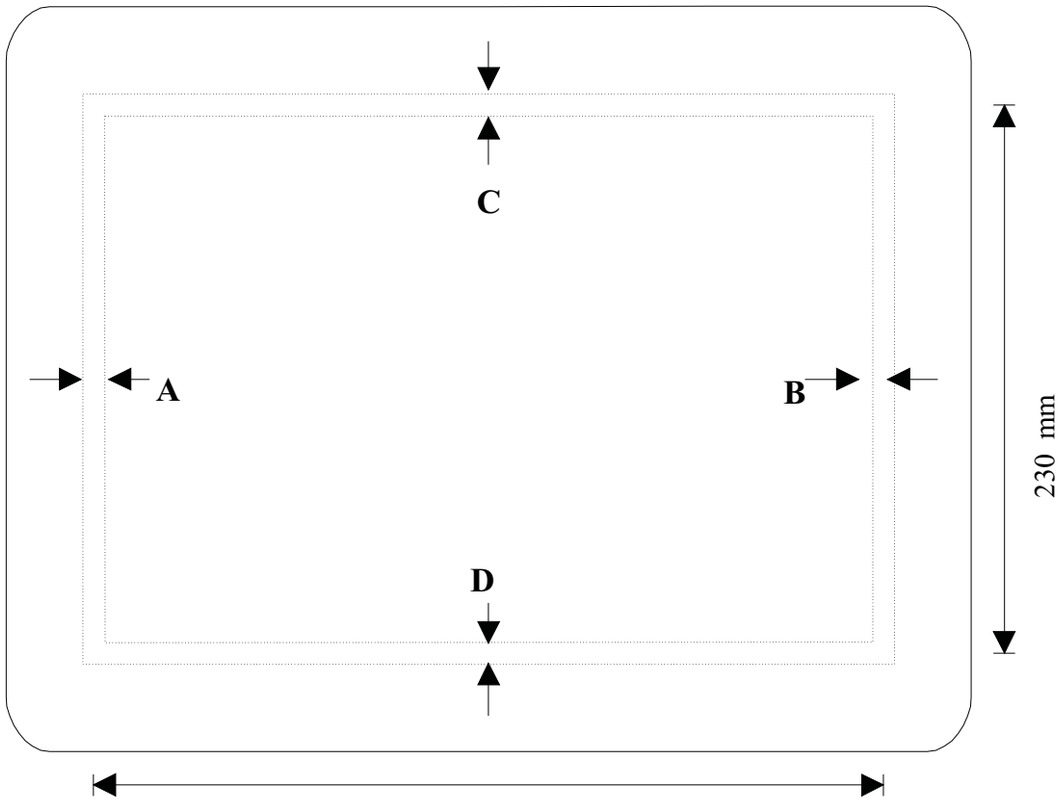
GENERAL PRODUCT SPECIFICATION



A, B < 2.0 mm C, D < 2.0 mm

FIG-4 IMAGE GEOMETRY

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS	8639 000 10649
00-06-07		
NAME K.C. Huang	SUPERS. 23	590 — 20 10 A4
TY CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

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PHILIPS

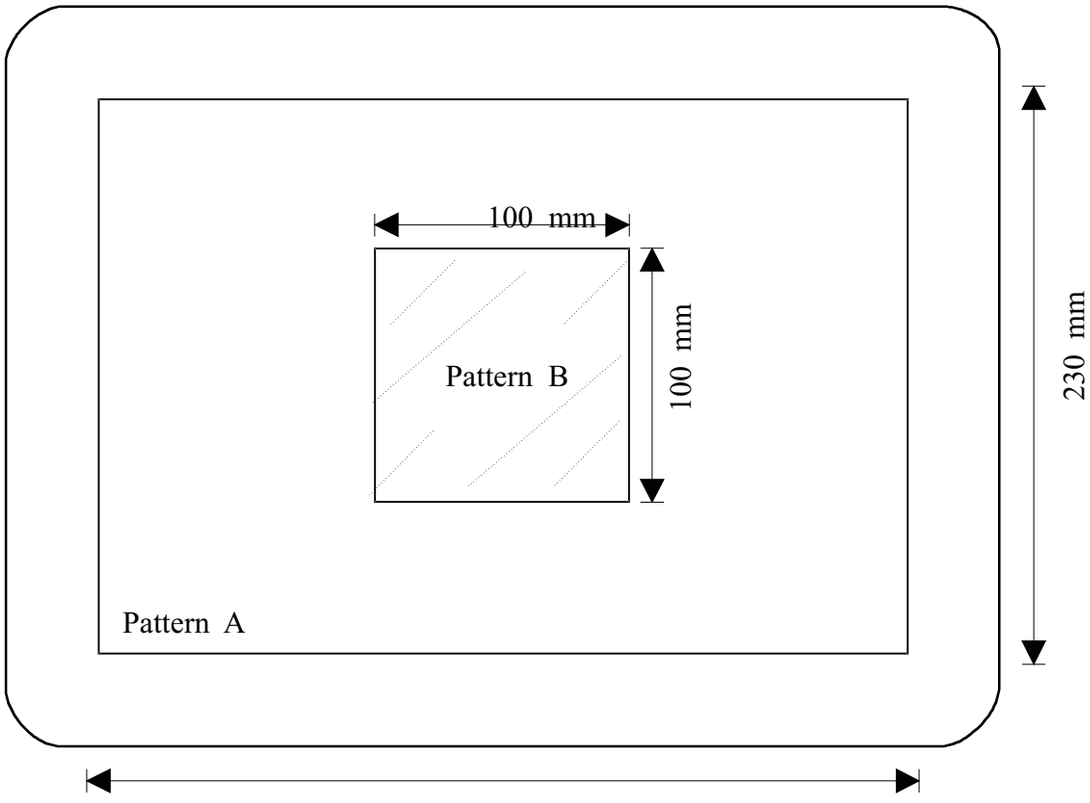

FIG-5 CONTRAST AND BRIGHTNESS MEASUREMENT PATTERNS

CLASS NO.	CM25-17" 107P2 92KHz AR CRT							
	TYPE : 107P20/00H	8639 000 10649						
00-06-07	BRAND : PHILIPS							
NAME K.C. Huang	SUPERS.	23	590 — 21	10		A4		
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

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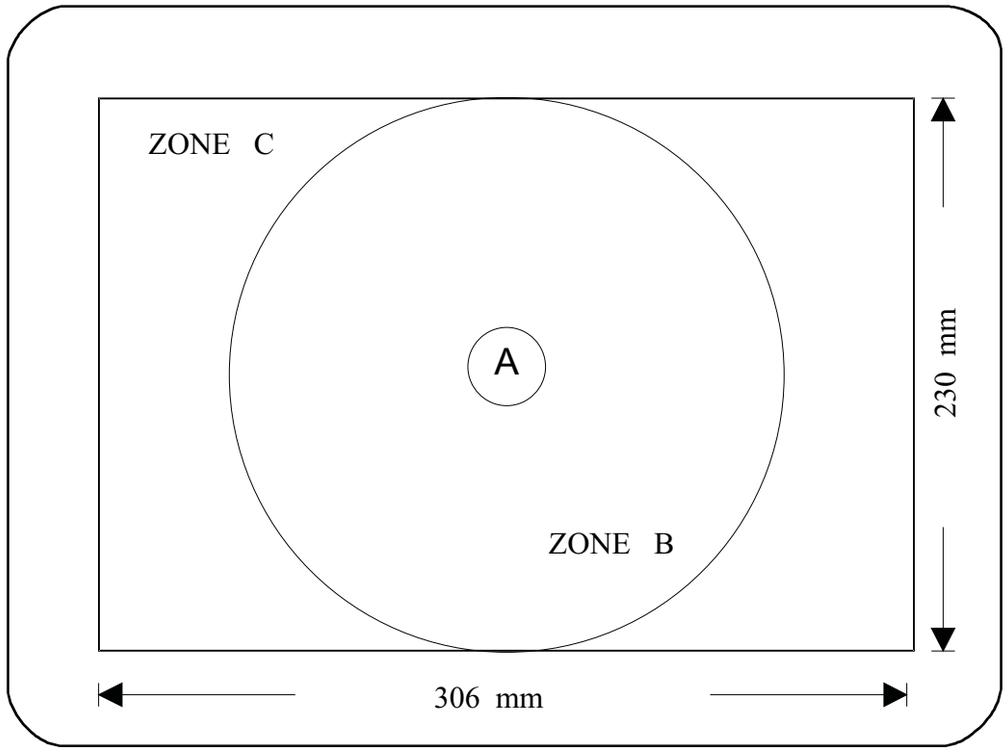

FIG-6 MISCONVERGENCE MEASUREMENT AREA

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS		8639 000 10649					
00-06-07								
NAME K.C. Huang	SUPERS.	23	590 — 22	10		A4		
TY / CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

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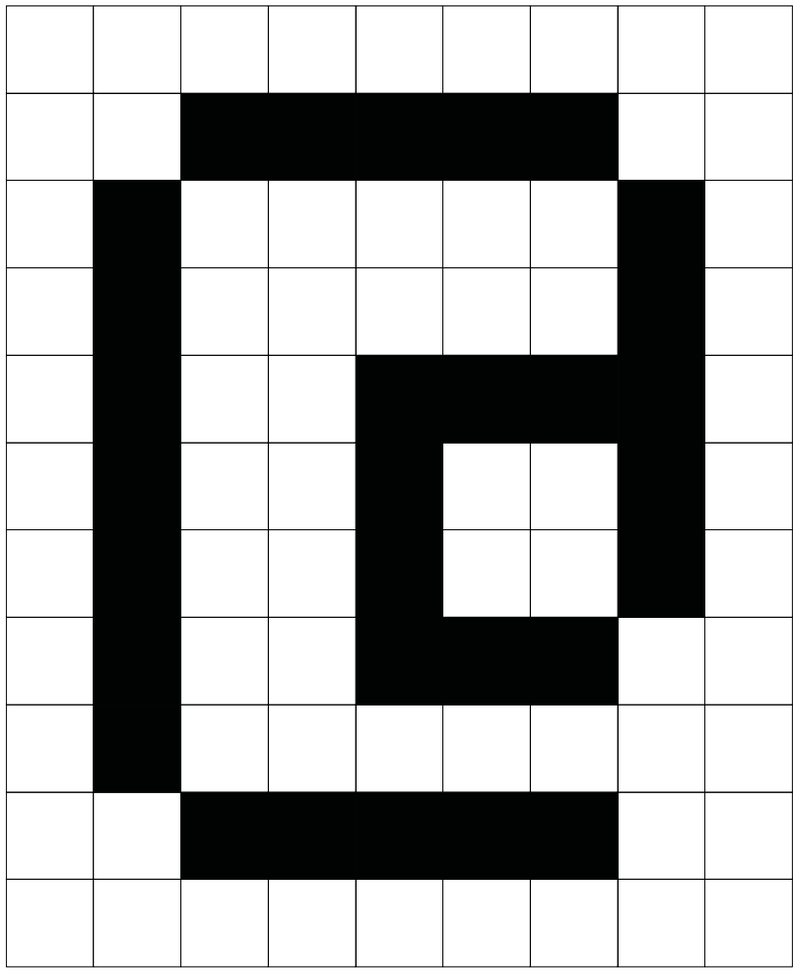

CHARACTER FOR FOCUS

(CHROMA 2200/2250 CHR NO. 56)

FIG - 7

CLASS NO.	CM25-17" 107P2 92KHz AR CRT TYPE : 107P20/00H BRAND : PHILIPS	8639 000 10649
00-06-07		

NAME	K.C. Huang	SUPERS.		23	590 — 23		10		A4
TY		CHECK	DATE 00-06-07	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424

Parts list

Go to cover page

Model :107P20/00H CM25-17"

ITEM		CODE	NUMBER	DESCRIPTION
1050		3138 178	52451	107P2B-M SEMIFINISHED SET
1053		2438 070	98118	MAINS CORD
1054		3138 168	73391	I/F CABLE
1101	⚠	2422 086	00208	FUSE T4AH 250V
1104		2422 132	07402	RELAY SDT -SS-112DM
1106		2438 128	00183	SWITCH
1111		3138 178	76762	AC INLET ASSY
1113		2438 025	00208	WAFER 2P
1151	⚠	8238 274	38951	CRT 17"/.25P/NF/U1 M41LRY31X21
1152		3138 188	05041	107P2B-M ALL CHAS.KITS
1153		3322 144	89801	SPOILER
1155		3138 178	52461	107P2B-M MAIN PCB ASSY
1157		3138 178	50931	107P2B-M VIDEO PCB ASSY
1158		3138 178	52471	107P2B-M KEY CNTR PCB ASSY
1252		3138 178	50871	H-O/P TRANS ASSY-107P2Asus
1253		3138 178	05571	POWER TRA ASSY-24MAX(7105)
1255		3138 178	07621	vert ic assy - 107pgs3(7404)
1258		3138 178	52481	EEPROM ASSY -107P2B (7804)
1301		2438 031	00072	CON BM V 12P M 2.5 625/635 B
1351		3138 128	67151	VIDEO IC ASSY-24HP17(7701)
1401		3138 100	20993	CONNECTOR 4P 2.35 DIA J101
1703		2438 025	00085	1P CONN. 2.35 DIA - J10
1711		2422 500	80064	CRT SCKT CVT3280 11P DIA 22.5
1712		3138 178	77651	1P WAFER 2.0 DIA
1713		3138 178	79621	CON BM H 10P M 2.5 625/626 B
1714		2438 031	00056	CON BM H 10P M 2.5 625/626 B
1800		2438 031	00167	CON BM IC V 42P F 1.778 DIL B
1800		2438 031	00167	CON BM IC V 42P F 1.778 DIL B
1801		2438 543	00061	RES XTL 12MHZ 30P HC49U B
1802		2438 031	00063	CON BM V 4P M 2.5 625/635 B
1891		2438 128	00196	SWI TACT H EQU. TO 5 GY 160G
1892		2438 128	00196	SWI TACT H EQU. TO 5 GY 160G
1893		2438 128	00196	SWI TACT H EQU. TO 5 GY 160G
1894		2438 128	00196	SWI TACT H EQU. TO 5 GY 160G
1895		2438 128	00196	SWI TACT H EQU. TO 5 GY 160G
2101		2020 307	90006	ACROSS LINE CAP 250V 1UF PM20
2102		2020 554	90139	CERSAF NSB 250V S 4N7 PM20 B
2103		2020 554	90139	CERSAF NSB 250V S 4N7 PM20 B
2105		2038 035	00315	ELCAP LZK 400V S 220U PM20 B
2109		2038 034	56109	ELCAP S 50V 10UF PM20 2E
2111		2038 302	50229	CAP MPOL 250V S 10N PM5 A
2112		2038 034	56228	ELCAP S 50V 2UF2 PM20 2E T
2114	⚠	2020 554	90138	CERSAF NSA 250V S 4N7 PM20 B
2115		2038 034	54229	ELCAP S 25V 22UF PM20 2E T
2120		2038 554	00065	CER2 DC Y5V 50V S 100N PM8020
2122		2020 552	90812	CERC CAP 50V 2N2 PM10
2123		2020 552	90812	CERC CAP 50V 2N2 PM10
2128		2252 602	14416	CERC CAP DC 2KV 470P PM10 X7R
2152		2038 031	92479	ELCAP 160V 47UF PM20 105DEG C
2154		2038 035	00026	ELCAP S 100V 220UF PM20 3
2156		2038 031	35102	ELCAP S 16V 1000UF PM20 2E T
2157		2038 031	35102	ELCAP S 16V 1000UF PM20 2E T
2160		2038 031	35102	ELCAP S 16V 1000UF PM20 2E T
2161		2020 552	90834	CCAP DC 50V 22N Z A
2162		2038 034	54229	ELCAP S 25V 22UF PM20 2E T
2163		2038 302	50212	POLCAP 100V 100N PM5 2E T
2164		2252 608	08011	CERC DC X7R 500V S 100P PM10 A
2165		2038 035	00056	ELCAP 2200UF 16V SX PM20
2166		2038 034	53471	ELCAP VX 470UF M 16V 2E 10x12.5 T
2167		2252 608	08221	CER2 DC X7R 500V S 2N2 PM10 A
2170		2020 552	90816	CERC DC 50V 4N7 PM10
2172		2038 034	54229	ELCAP S 25V 22UF PM20 2E T
2301		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2302		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2304		2238 861	15221	MLCC 0850 NPO 220PF J 4B 9
2305		2238 861	15221	MLCC 0850 NPO 220PF J 4B 9
2307		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2308		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2309		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2310		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2311		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2312		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2316		2238 861	15478	SMD 0805 NPO 4P7 50V 0.25P
2317		2238 861	15478	SMD 0805 NPO 4P7 50V 0.25P
2318		2238 861	15478	SMD 0805 NPO 4P7 50V 0.25P
2319		2222 861	12479	MLCC 0805 NPO 50V 47P COL R
2322		2222 910	16647	CER2 0805 X7R 25V 68N PM10
2323		2238 580	16627	CER2 0805 X7R 50V 10N PM10 R
2324		2038 034	53221	ELCAP S 16V 220UF PM20 2E
2325		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2326		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2341		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2342		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2343		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2344		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2345		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2346		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2347		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2348		2038 034	56109	ELCAP S 50V 10UF PM20 2E
2349		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2350		2238 910	16649	MLCC 0805 X7R 25V 100N K R
2408		2038 302	50218	MEF CAP 10N 100V PM2 2E
2409		2020 552	90798	CERC DC 50V 220P PM10
2410		2020 552	90807	CERC DC 50V 1N0 PM10
2411		2038 034	56228	ELCAP S 50V 2UF2 PM20 2E T
2412		2020 552	90816	CERC DC 50V 4N7 PM10
2413		2038 034	53101	ELCAP S 16V 100UF PM20 2E
2414		2038 034	56109	ELCAP S 50V 10UF PM20 2E
2415		2038 034	58229	ELCAP S 100V 22UF PM20 2E T
2416		2020 552	90834	CCAP DC 50V 22N Z A
2417		2038 034	56228	ELCAP S 50V 2UF2 PM20 2E T
2418		2020 552	90816	CERC DC 50V 4N7 PM10
2419		2020 552	90834	CCAP DC 50V 22N Z A
2422		2038 031	45471	ELCAP 470UF 25V PM20 2E 105C T
2423		2038 031	45471	ELCAP 470UF 25V PM20 2E 105C T
2424		2038 302	50095	MEF CAP 100V 100N PM10 2E
2425		2038 302	50125	MEF CAP 100V 220N PM10 2E
2426		2038 034	58229	ELCAP S 100V 22UF PM20 2E T
2501		2020 552	90598	CERC DC NPO 50V 47P PM5 2
2502		2038 302	00162	PP CAP 330N 250V PM10 6E
2503		2020 552	90598	CERC DC NPO 50V 47P PM5 2
2504		2020 552	90598	CERC DC NPO 50V 47P PM5 2
2505		2038 034	53102	ELCAP S 16V 1000UF PM20 T
2506		2038 302	50212	POLCAP 100V 100N PM5 2E T
2507		2038 301	50186	PPN 100V 8N2 PM5 T
2508		2038 302	50218	MEF CAP 10N 100V PM2 2E
2509		2038 301	50157	CAP PP PPN 100V S 5N6 PM2 A
2510		2038 034	56108	ELCAP S 50V 1UF PM20 2E T
2511		2020 552	90598	CERC DC NPO 50V 47P PM5 2
2512		2038 034	56109	ELCAP S 50V 10UF PM20 2E

Parts list

ITEM	CODE NUMBER	DESCRIPTION
2513	2038 302 50095	MEF CAP 100V 100N PM10 2E
2514	2038 301 50189	CAP PP PPN 100V S 2N2 PM2
2515	2038 302 50125	MEF CAP 100V 220N PM10 2E
2516	2038 302 50212	POLCAP 100V 100N PM5 2E T
2517	2020 552 90807	CERC DC 50V 1N0 PM10
2518	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2519	2020 552 90798	CERC DC 50V 220P PM10
2520	2020 552 90798	CERC DC 50V 220P PM10
2521	2038 031 65109	ELCAP VT 50V 10UF PM20 2E
2523	2252 608 08221	CER2 DC X7R 500V S 2N2 PM10 A
2526	2038 554 00065	CER2 DC Y5V 50V S 100N PM8020
2527	2020 552 90807	CERC DC 50V 1N0 PM10
2601	2020 552 90834	CCAP DC 50V 22N Z A
2602	2038 302 50099	POLCAP 100V 470N PM10 2E
2603	2038 035 22801	ECAP NP 1U 160V 105C NK
2604	2038 031 92003	ELCAP S 250V 33UF PM20 2E
2605	2038 302 50229	CAP MPOL 250V S 10N PM5 A
2606	2038 302 00162	PP CAP 330N 250V PM10 6E
2607	2038 031 45101	ECAP S 25V 100UF M 2E T
2608	2038 031 45101	ECAP S 25V 100UF M 2E T
2609	2252 608 08221	CER2 DC X7R 500V S 2N2 PM10 A
2610	2252 602 14216	CERCAP DC 2KV 220P K X7R T
2611	2252 602 14216	CERCAP DC 2KV 220P K X7R T
2612	2252 608 08221	CER2 DC X7R 500V S 2N2 PM10 A
2613	2038 301 00119	PPS CAP 1K6V 4N7 PM5
2614	2038 302 50125	MEF CAP 100V 220N PM10 2E
2618	2038 302 50212	POLCAP 100V 100N PM5 2E T
2619	2252 602 14416	CERC CAP DC 2KV 470P PM10 X7R
2620	2020 552 90834	CCAP DC 50V 22N Z A
2621	2020 552 90834	CCAP DC 50V 22N Z A
2622	2038 301 00208	CAP PP PPN 250V S 47N PM5 B
2623	2038 301 00224	MPS CAP 220N 250V PM5 7E
2624	2038 301 00414	MPS CAP 200N 250V PM5 7E
2625	2038 301 00333	MPS CAP 910N 250V PM5 7E
2626	2038 301 00303	MPS CAP 470N 250V PM5 7E
2627	2038 302 50095	MEF CAP 100V 100N PM10 2E
2628	2020 552 90834	CCAP DC 50V 22N Z A
2640	2038 031 65109	ELCAP VT 50V 10UF PM20 2E
2641	2038 031 65109	ELCAP VT 50V 10UF PM20 2E
2645	2020 552 90834	CCAP DC 50V 22N Z A
2646	2038 302 50212	POLCAP 100V 100N PM5 2E T
2651	2038 301 00307	MPS CAP 120N 250V PM5 7E
2652	2020 552 90834	CCAP DC 50V 22N Z A
2653	2020 552 90812	CERC CAP 50V 2N2 PM10
2654	2038 035 00026	ELCAP S 100V 220UF PM20 3
2655	2038 301 00109	PPN CAP 3N3 630V PM10
2656	2038 302 00102	MEF CAP 400V 47N PM10 6E
2657	2222 347 41473	POLCAP S 250V 47N PM10 6E
2658	2038 302 00209	MEF CAP 1U 100V 6E
2659	2038 302 50099	POLCAP 100V 470N PM10 2E
2660	2038 031 95007	ELCAP VT 10U M 250V 2E T 10x20
2661	2038 034 56108	ELCAP S 50V 1UF PM20 2E T
2665	2038 034 56109	ELCAP S 50V 10UF PM20 2E
2666	2252 608 08221	CER2 DC X7R 500V S 2N2 PM10 A
2667	2252 602 14216	CERCAP DC 2KV 220P K X7R T
2668	2252 602 08116	CER2 DC X7R 2KV S 150P PM10 A
2702	2238 910 16649	MLCC 0805 X7R 25V 100N K R
2721	2038 031 85109	ELCAP S 100V 10UF PM20 2E T
2722	2222 580 15649	CER2 0805 X7R 50V 100N PM10 R
2723	2038 035 22801	ECAP NP 1U 160V 105C NK

ITEM	CODE NUMBER	DESCRIPTION
2724	2038 031 85108	ELCAP S 100V 1UF PM20 2E T
2725	2422 549 44346	SPARK GAP DSP-201m
2726	2222 580 15649	CER2 0805 X7R 50V 100N PM10 R
2731	2038 035 22801	ECAP NP 1U 160V 105C NK
2732	2038 031 85108	ELCAP S 100V 1UF PM20 2E T
2733	2422 549 44346	SPARK GAP DSP-201m
2751	2038 035 22801	ECAP NP 1U 160V 105C NK
2752	2038 031 85108	ELCAP S 100V 1UF PM20 2E T
2753	2422 549 44346	SPARK GAP DSP-201m
2760	2238 861 15471	CMC 0805 NPO 470P 50V J
2761	2238 910 16649	MLCC 0805 X7R 25V 100N K R
2762	2235 559 00099	CERC CAP 2KV 10N PM10 4E
2763	2238 580 16623	MLCC 0805 X7R 4N7F K 4B 9
2771	2238 910 16649	MLCC 0805 X7R 25V 100N K R
2772	2252 608 08021	CERC DC X7R 500V 1N0 PM10 A
2773	2038 034 56109	ELCAP S 50V 10UF PM20 2E
2776	2038 031 85479	ELCAP VT 100V S 47U PM20 B
2777	2238 910 16649	MLCC 0805 X7R 25V 100N K R
2778	2038 031 45479	ELCAP VT 25V 47UF PM20 2E T
2779	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2780	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2781	2222 861 12479	MLCC 0805 NPO 50V 47P COL R
2782	2222 861 12479	MLCC 0805 NPO 50V 47P COL R
2783	2038 031 45479	ELCAP VT 25V 47UF PM20 2E T
2785	2038 031 45479	ELCAP VT 25V 47UF PM20 2E T
2801	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2802	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2803	2020 552 90589	CERC DC NPO 50V 10P PM5 2E T
2804	2020 552 90589	CERC DC NPO 50V 10P PM5 2E T
2805	2020 552 90798	CERC DC 50V 220P PM10
2806	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2807	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2808	2038 554 00065	CER2 DC Y5V 50V S 100N PM8020
2809	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2810	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2811	2020 552 90834	CCAP DC 50V 22N Z A
2812	2020 552 90834	CCAP DC 50V 22N Z A
2814	2038 034 56109	ELCAP S 50V 10UF PM20 2E
2816	2020 552 90598	CERC DC NPO 50V 47P PM5 2
2819	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2820	2038 034 53471	ELCAP VX 470UF M 16V 2E 10x12.5 T
2821	2038 034 56109	ELCAP S 50V 10UF PM20 2E
2822	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2823	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2824	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2825	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2826	2038 034 56228	ELCAP S 50V 2UF2 PM20 2E T
2831	2020 552 90816	CERC DC 50V 4N7 PM10
2832	2020 552 90816	CERC DC 50V 4N7 PM10
2833	2038 034 53101	ELCAP S 16V 100UF PM20 2E
3101	2322 242 13684	METGLAZ RST A VR37 680K PM5
3102	2322 662 96758	DEGAUSSING PTC THERMISTOR B
3104 ⚠	2322 205 33109	RST FUSE NFR25 10R PM5
3105	2138 116 13304	RST MFLM MF50S A 330K PM1 A
3106	2138 116 13304	RST MFLM MF50S A 330K PM1 A
3107 ⚠	2322 205 33221	RST FUSE NFR25 S 220R PM5
3108 ⚠	2322 205 33221	RST FUSE NFR25 S 220R PM5
3109	2138 660 00038	SCK -055 NTC
3111	2120 105 92452	RST MOX 3W RSS S 27K PM5 B
3112	2138 105 00111	PWR RES 820R 5W

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3113 ⚠	2322 205 33109	RST FUSE NFR25 10R PM5
3114	2138 101 13103	RST CRB CR12 A 10K PM5 A
3115	2138 112 73477	CARBRST R25 0.47R PM5
3116	2138 112 73477	CARBRST R25 0.47R PM5
3117	2138 112 73477	CARBRST R25 0.47R PM5
3119 ⚠	2322 205 33221	RST FUSE NFR25 S 220R PM5
3120	2138 112 73477	CARBRST R25 0.47R PM5
3121	2322 242 13475	METGLAZ RST A VR37 4M7 PM5 T
3122	2322 242 13475	METGLAZ RST A VR37 4M7 PM5 T
3123	2138 101 13333	RST CRB CR12 A 33K PM5 A
3124	2138 101 13334	RST CRB CR12 A 330K PM5 A
3125	2138 101 13102	RST CRB CR12 A 1K PM5 A
3126	2138 101 13152	RST CRB CR12 A 1K5 PM5 A
3127 ⚠	2322 205 33221	RST FUSE NFR25 S 220R PM5
3128	2138 101 13229	RST CRB CR12 A 22R PM5 A
3129	2138 101 13101	RST CRB CR12 A 100R PM5 A
3130	2138 101 13333	RST CRB CR12 A 33K PM5 A
3131	2138 116 12403	RST MFLM MF50S A 24K PM1 A
3132 ⚠	2322 205 33109	RST FUSE NFR25 10R PM5
3133	2138 101 13821	RST CRB CR12 A 820R PM5 A
3134	2138 101 13822	RST CRB CR12 A 8K2 PM5 A
3135	2138 101 13102	RST CRB CR12 A 1K PM5 A
3139	2138 101 13103	RST CRB CR12 A 10K PM5 A
3151	2138 116 17503	RST MFLM MF50S A 75K PM1 A
3153	2138 116 12202	RST MFLM MF50S A 2K2 PM1 A
3154	2138 116 17503	RST MFLM MF50S A 75K PM1 A
3156	2138 101 13333	RST CRB CR12 A 33K PM5 A
3158	2138 116 11502	RST MFLM MF50S A 1K5 PM1 A
3159	2138 116 11504	RST MFLM MF50S A 150K PM1 A
3160	2138 105 00061	RST MOX 2W RSS S 15K PM5
3161	2138 101 13102	RST CRB CR12 A 1K PM5 A
3162	2138 101 13102	RST CRB CR12 A 1K PM5 A
3163	2138 116 13902	RST MFLM MF50S A 3K9 PM1 A
3164	2138 116 15601	RST MFLM MF50S A 560R PM1 A
3165	2138 365 00061	RTRM CER LIN 500R H VG068TL1 B
3166	2138 101 13333	RST CRB CR12 A 33K PM5 A
3167	2138 101 13102	RST CRB CR12 A 1K PM5 A
3168	2138 101 13472	RST CRB CR12 A 4K7 PM5 A
3170	2138 101 13101	RST CRB CR12 A 100R PM5 A
3171	2138 101 13102	RST CRB CR12 A 1K PM5 A
3172	2138 116 11504	RST MFLM MF50S A 150K PM1 A
3173	2138 101 13102	RST CRB CR12 A 1K PM5 A
3301	2322 734 67509	RST SM 0805 RC11 75R PM1 T
3302	2322 734 67509	RST SM 0805 RC11 75R PM1 T
3303	2322 734 67509	RST SM 0805 RC11 75R PM1 T
3305	2322 730 61472	RST SM 0805 RC11 4K7 PM5 R
3306	2322 730 61472	RST SM 0805 RC11 4K7 PM5 R
3307	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3309	2322 730 61102	RST SMC 0805 RC11 1K PM5 T
3310	2138 101 13102	RST CRB CR12 A 1K PM5 A
3311	2322 730 61102	RST SMC 0805 RC11 1K PM5 T
3312	2322 730 61479	RES 47R 0805 SMD RC-11 T
3313	2322 730 61479	RES 47R 0805 SMD RC-11 T
3314	2322 730 61479	RES 47R 0805 SMD RC-11 T
3315	2322 730 61222	RST SM 0805 RC11 2K2 PM5 R
3316	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3324	2322 730 61332	RES 3K3 0805 SMD
3325	2138 101 13103	RST CRB CR12 A 10K PM5 A
3326	2322 730 61103	RES 10K RC-11 SMD 0805 T
3327	2322 730 61562	RES 5.6K RC-11 SMD 0805 T
3328	2322 730 61562	RES 5.6K RC-11 SMD 0805 T
3329	2322 730 61562	RES 5.6K RC-11 SMD 0805 T
3330	2322 730 61394	SMD R0805 390K PM5
3332	2138 101 13101	RST CRB CR12 A 100R PM5 A
3333	2138 101 13101	RST CRB CR12 A 100R PM5 A
3334	2322 730 61151	RST SM 0805 RC11 150R PM5 R
3335	2322 730 61102	RST SMC 0805 RC11 1K PM5 T
3336	2322 730 61102	RST SMC 0805 RC11 1K PM5 T
3337	2322 730 61102	RST SMC 0805 RC11 1K PM5 T
3338	2322 730 61472	RST SM 0805 RC11 4K7 PM5 R
3339	2322 730 61472	RST SM 0805 RC11 4K7 PM5 R
3341	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3342	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3343	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3344	2138 101 13101	RST CRB CR12 A 100R PM5 A
3345	2138 101 13101	RST CRB CR12 A 100R PM5 A
3346	2138 101 13101	RST CRB CR12 A 100R PM5 A
3347	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3348	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3349	2138 101 13101	RST CRB CR12 A 100R PM5 A
3350	2322 730 61101	RST SM 0805 RC11 100R PM5 R
3351	2138 101 13101	RST CRB CR12 A 100R PM5 A
3352	2138 101 00369	CABON RES. CR-12 1/6W 0 OHM
3353	2138 101 00369	CABON RES. CR-12 1/6W 0 OHM
3354	2138 101 00369	CABON RES. CR-12 1/6W 0 OHM
3359	2138 101 00369	CABON RES. CR-12 1/6W 0 OHM
3360	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3361	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3362	2322 730 61228	RES 2R2 SMD 0805
3363	2322 730 61228	RES 2R2 SMD 0805
3372	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3376	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3378	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3379	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3380	2322 730 91002	RST SM 0805 JUMP. MAX 0R05 T
3401	2138 116 12202	RST MFLM MF50S A 2K2 PM1 A
3402	2138 101 13471	RST CRB CR12 A 470R PM5 A
3403	2138 101 13471	RST CRB CR12 A 470R PM5 A
3404	2138 116 12202	RST MFLM MF50S A 2K2 PM1 A
3405 ⚠	2322 207 33108	MET FLM RST NFR25H 1R0 PM5 T
3406	2138 116 04188	RST MFLM MF50S A 1R8 PM5 A
3407	2138 101 13479	RST CRB CR12 A 47R PM5 A
3408	2138 116 04188	RST MFLM MF50S A 1R8 PM5 A
3409 ⚠	2322 205 33221	RST FUSE NFR25 S 220R PM5
3410	2138 116 04158	RST MFLM MF50S A 1R5 PM5 A
3411 ⚠	2322 207 33101	RST MFLM NFR25H 100R PM5
3413	2138 101 13223	RST CRB CR12 A 22K PM5 A
3414	2138 101 13822	RST CRB CR12 A 8K2 PM5 A
3415	2138 101 13101	RST CRB CR12 A 100R PM5 A
3416	2138 101 13102	RST CRB CR12 A 1K PM5 A
3417	2138 101 13472	RST CRB CR12 A 4K7 PM5 A
3418	2138 101 13103	RST CRB CR12 A 10K PM5 A
3419	2138 101 13473	RST CRB CR12 A 47K PM5 A
3420	2138 101 13473	RST CRB CR12 A 47K PM5 A
3421	2138 101 13331	RST CRB CR12 A 330R PM5 A
3422	2138 101 13479	RST CRB CR12 A 47R PM5 A
3423	2138 101 13473	RST CRB CR12 A 47K PM5 A
3424	2138 101 13154	RST CRB CR12 A 150K PM5 A
3425	2138 101 13334	RST CRB CR12 A 330K PM5 A
3427	2138 101 13472	RST CRB CR12 A 4K7 PM5 A

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ITEM		CODE	NUMBER	DESCRIPTION
3428		2138	101 13152	RST CRB CR12 A 1K5 PM5 A
3429		2138	101 13103	RST CRB CR12 A 10K PM5 A
3431	⚠	2322	207 33108	MET FLM RST NFR25H 1R0 PM5 T
3432		2138	101 13479	RST CRB CR12 A 47R PM5 A
3456	⚠	2322	205 33109	RST FUSE NFR25 10R PM5
3501		2138	116 12202	RST MFLM MF50S A 2K2 PM1 A
3502		2138	101 13103	RST CRB CR12 A 10K PM5 A
3503		2138	101 13223	RST CRB CR12 A 22K PM5 A
3504		2138	116 12403	RST MFLM MF50S A 24K PM1 A
3505		2138	101 13103	RST CRB CR12 A 10K PM5 A
3506		2138	101 13103	RST CRB CR12 A 10K PM5 A
3507		2138	101 13471	RST CRB CR12 A 470R PM5 A
3508		2138	116 12403	RST MFLM MF50S A 24K PM1 A
3509		2138	101 13102	RST CRB CR12 A 1K PM5 A
3510		2138	116 13304	RST MFLM MF50S A 330K PM1 A
3511		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3513		2138	101 13473	RST CRB CR12 A 47K PM5 A
3514		2138	101 13331	RST CRB CR12 A 330R PM5 A
3515		2138	116 15601	RST MFLM MF50S A 560R PM1 A
3516		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3517		2138	101 13333	RST CRB CR12 A 33K PM5 A
3518		2138	101 13222	RST CRB CR12 A 2K2 PM5 A
3519		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3520		2138	101 13103	RST CRB CR12 A 10K PM5 A
3521		2138	116 17503	RST MFLM MF50S A 75K PM1 A
3522		2138	101 13101	RST CRB CR12 A 100R PM5 A
3523		2138	116 12702	RST MFLM MF50S A 2K7 PM1 A
3524		2138	116 17321	RST MFLM MF50S A 732R PM1 A
3525		2138	101 13332	RST CRB CR12 A 3K3 PM5 A
3526		2138	101 13154	RST CRB CR12 A 150K PM5 A
3527		2138	101 13101	RST CRB CR12 A 100R PM5 A
3528		2138	101 13101	RST CRB CR12 A 100R PM5 A
3529		2138	101 13101	RST CRB CR12 A 100R PM5 A
3530		2138	101 13101	RST CRB CR12 A 100R PM5 A
3531		2138	101 13101	RST CRB CR12 A 100R PM5 A
3532		2138	116 17503	RST MFLM MF50S A 75K PM1 A
3533		2138	116 17503	RST MFLM MF50S A 75K PM1 A
3534		2138	101 13154	RST CRB CR12 A 150K PM5 A
3535		2138	101 13123	RST CRB CR12 A 12K PM5 A
3536		2138	101 13154	RST CRB CR12 A 150K PM5 A
3537		2138	101 13224	RST CRB CR12 A 220K PM5 A
3538		2138	365 00087	RTRM CER V 100K VG067TH1 B
3540	⚠	2322	207 33228	RST FUSE NFR25H 2R2 PM5
3541	⚠	2322	207 33228	RST FUSE NFR25H 2R2 PM5
3542	⚠	2322	207 33108	MET FLM RST NFR25H 1R0 PM5 T
3543		2138	101 13105	RST CRB CR12 A 1M PM5 A
3597		2138	116 11005	RST MFLM MF50S A 1M PM1 A
3599		2138	116 17503	RST MFLM MF50S A 75K PM1 A
3601		2138	101 13101	RST CRB CR12 A 100R PM5 A
3602		2138	101 13103	RST CRB CR12 A 10K PM5 A
3603	⚠	2322	205 33479	MET FLM RST NFR25 47R PM5PM5 T
3604		2120	105 92191	METOX FLM RST 5K6 3W PM5 T
3605		2138	105 00119	RST MOX 5W RSS S 1R2 PM5 B
3606	⚠	2322	205 33109	RST FUSE NFR25 10R PM5
3607	⚠	2322	207 33101	RST MFLM NFR25H 100R PM5
3608		2138	101 13223	RST CRB CR12 A 22K PM5 A
3609		2322	207 33101	RST MFLM NFR25H 100R PM5
3610		2138	105 00095	RST MOX 7W RSH S 33R PM5
3612		2138	101 13681	RST CRB CR12 A 680R PM5 A
3613	⚠	2322	207 33108	MET FLM RST NFR25H 1R0 PM5 T
3614	⚠	2322	207 33108	MET FLM RST NFR25H 1R0 PM5 T
3616		2138	101 13103	RST CRB CR12 A 10K PM5 A
3617		2138	101 13681	RST CRB CR12 A 680R PM5 A
3618		2138	116 15602	RST MFLM MF50S A 5K6 PM1 A
3621		2138	101 13229	RST CRB CR12 A 22R PM5 A
3622		2138	101 13473	RST CRB CR12 A 47K PM5 A
3623		2138	101 13105	RST CRB CR12 A 1M PM5 A
3624		2138	101 13562	RST CRB CR12 A 5K6 PM5 A
3626		2138	101 13229	RST CRB CR12 A 22R PM5 A
3627		2120	105 92388	METOX FLM RST 2W 33R PM5
3628		2138	116 04188	RST MFLM MF50S A 1R8 PM5 A
3629		2138	101 13333	RST CRB CR12 A 33K PM5 A
3630		2138	116 15601	RST MFLM MF50S A 560R PM1 A
3631		2138	105 00093	RES RSH-7W/150 OHM
3632		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3633		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3634		2138	101 13103	RST CRB CR12 A 10K PM5 A
3635		2138	101 13103	RST CRB CR12 A 10K PM5 A
3636		2138	101 13473	RST CRB CR12 A 47K PM5 A
3637		2138	101 13473	RST CRB CR12 A 47K PM5 A
3638		2138	101 13154	RST CRB CR12 A 150K PM5 A
3639		2138	101 13154	RST CRB CR12 A 150K PM5 A
3640		2138	101 13154	RST CRB CR12 A 150K PM5 A
3641		2138	101 13154	RST CRB CR12 A 150K PM5 A
3642		2138	101 13473	RST CRB CR12 A 47K PM5 A
3643		2138	101 13473	RST CRB CR12 A 47K PM5 A
3644		2138	101 13103	RST CRB CR12 A 10K PM5 A
3645		2138	101 13103	RST CRB CR12 A 10K PM5 A
3646		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3647		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3648		2138	101 13471	RST CRB CR12 A 470R PM5 A
3649	⚠	2322	205 33109	RST FUSE NFR25 10R PM5
3652		2322	242 13224	METGLAZ RST A VR37 220K PM5 T
3653		2138	116 15601	RST MFLM MF50S A 560R PM1 A
3654		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3655		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3656		2138	101 13101	RST CRB CR12 A 100R PM5 A
3658		2138	101 13229	RST CRB CR12 A 22R PM5 A
3659	⚠	2322	205 33109	RST FUSE NFR25 10R PM5
3660		2138	101 13152	RST CRB CR12 A 1K5 PM5 A
3661		2138	101 13123	RST CRB CR12 A 12K PM5 A
3662		2138	116 14704	RST MFLM MF50S A 470K PM1 A
3663		2120	101 28222	RST CMP ERC12 A 2K2 PM10 A
3664		2322	242 13224	METGLAZ RST A VR37 220K PM5 T
3665		2322	242 13224	METGLAZ RST A VR37 220K PM5 T
3666		2138	116 04475	RST MFLM MF50S A 4M7 PM5
3667		2138	116 17503	RST MFLM MF50S A 75K PM1 A
3668		2138	101 13681	RST CRB CR12 A 680R PM5 A
3669		2138	101 13333	RST CRB CR12 A 33K PM5 A
3670		2138	101 13223	RST CRB CR12 A 22K PM5 A
3671		2138	101 13152	RST CRB CR12 A 1K5 PM5 A
3672		2138	101 13101	RST CRB CR12 A 100R PM5 A
3673		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3674		2138	101 13333	RST CRB CR12 A 33K PM5 A
3675		2138	101 13103	RST CRB CR12 A 10K PM5 A
3676		2138	101 13334	RST CRB CR12 A 330K PM5 A
3677		2138	101 13229	RST CRB CR12 A 22R PM5 A
3678		2138	101 13224	RST CRB CR12 A 220K PM5 A
3679		2138	101 13682	RST CRB CR12 A 6K8 PM5 A
3680		2138	101 13335	RST CRB CR12 A 3M3 PM5 A

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ITEM		CODE	NUMBER	DESCRIPTION
3681		2120	105 92392	MET FLM RST 1W 47R PM5 RSS B
3682		2138	116 12202	RST MFLM MF50S A 2K2 PM1 A
3684		2138	101 13333	RST CRB CR12 A 33K PM5 A
3685		2138	101 13154	RST CRB CR12 A 150K PM5 A
3686		2138	101 13333	RST CRB CR12 A 33K PM5 A
3687		2138	105 00094	RES RSH 7W 510R PM5
3690		2322	242 13106	METGLAZ RST A VR37 10M PM5
3691		2138	101 13473	RST CRB CR12 A 47K PM5 A
3692		2138	101 13103	RST CRB CR12 A 10K PM5 A
3693		2138	101 13154	RST CRB CR12 A 150K PM5 A
3694		2138	101 13229	RST CRB CR12 A 22R PM5 A
3695		2322	242 13106	METGLAZ RST A VR37 10M PM5
3696		2138	101 13105	RST CRB CR12 A 1M PM5 A
3697	⚠	2322	205 33109	RST FUSE NFR25 10R PM5
3698		2138	365 00084	RTRM CER LIN 20K V VG067TH1 B
3703		2138	101 13339	RST CRB CR12 A 33R PM5 A
3704		2138	101 13471	RST CRB CR12 A 470R PM5 A
3705		2138	101 13471	RST CRB CR12 A 470R PM5 A
3706		2138	101 13471	RST CRB CR12 A 470R PM5 A
3707		2322	730 61101	RST SM 0805 RC11 100R PM5 R
3713		2138	101 13339	RST CRB CR12 A 33R PM5 A
3716		2138	101 13339	RST CRB CR12 A 33R PM5 A
3718		2138	101 13479	RST CRB CR12 A 47R PM5 A
3719		2138	101 13479	RST CRB CR12 A 47R PM5 A
3720		2138	101 13479	RST CRB CR12 A 47R PM5 A
3721		2120	101 28479	CARBRST COMP 1/2W 47R PM10
3722		2138	112 73224	CARBRST FLM CR25 220K PM5
3723		2138	101 13821	RST CRB CR12 A 820R PM5 A
3724		2138	116 11503	RST MFLM MF50S A 15K PM1 A
3725		2322	730 61274	SMD R0805 270K PM5 R
3726		2138	112 73683	CARBRST FLM CR25 68K PM5
3727		2138	101 13303	RST CRB CR12 A 30K PM5 A
3728		2138	112 73109	CARBRST FLM CR25 10R PM5
3729		2138	101 13479	RST CRB CR12 A 47R PM5 A
3730		2322	730 61105	RES 1M RC-11 SMD 0805 T
3731		2120	101 28479	CARBRST COMP 1/2W 47R PM10
3732		2138	112 73224	CARBRST FLM CR25 220K PM5
3733		2138	101 13821	RST CRB CR12 A 820R PM5 A
3734		2138	116 11503	RST MFLM MF50S A 15K PM1 A
3735		2322	730 61274	SMD R0805 270K PM5 R
3736		2138	112 73683	CARBRST FLM CR25 68K PM5
3737		2138	101 13303	RST CRB CR12 A 30K PM5 A
3738		2138	112 73109	CARBRST FLM CR25 10R PM5
3740		2322	730 91002	RST SM 0805 JUMP. MAX 0R05 T
3741		2322	730 61105	RES 1M RC-11 SMD 0805 T
3742		2322	730 61105	RES 1M RC-11 SMD 0805 T
3743		2322	730 61759	RST SM 0805 RC11 75R PM5 T
3744		2322	730 61759	RST SM 0805 RC11 75R PM5 T
3745		2322	730 61759	RST SM 0805 RC11 75R PM5 T
3751		2120	101 28479	CARBRST COMP 1/2W 47R PM10
3752		2138	112 73224	CARBRST FLM CR25 220K PM5
3753		2138	101 13821	RST CRB CR12 A 820R PM5 A
3754		2138	116 11503	RST MFLM MF50S A 15K PM1 A
3755		2322	730 61274	SMD R0805 270K PM5 R
3756		2138	112 73683	CARBRST FLM CR25 68K PM5
3757		2138	101 13303	RST CRB CR12 A 30K PM5 A
3758		2138	112 73109	CARBRST FLM CR25 10R PM5
3760		2138	116 13001	RST MFLM MF50S A 300R PM1 A
3761		2322	730 61102	RST SMC 0805 RC11 1K PM5 T
3762		2322	730 61103	RES 10K RC-11 SMD 0805 T
3763		2322	730 61332	RES 3K3 0805 SMD
3764		2322	730 61472	RST SM 0805 RC11 4K7 PM5 R
3765		2322	730 61682	RES 6K8 0805 SMD
3767		2322	730 61472	RST SM 0805 RC11 4K7 PM5 R
3771		2120	101 28152	CARBRST COMP 1/2W 1K5 PM10
3772		2120	101 28153	CARBRST COMP 1/2W 15K PM10
3773		2138	116 11802	RST MFLM MF50S A 1K8 PM1 A
3775		2138	112 73479	CARBRST FLM CR25 47R PM5
3776		2322	730 61101	RST SM 0805 RC11 100R PM5 R
3777		2322	730 61101	RST SM 0805 RC11 100R PM5 R
3778		2322	730 61102	RST SMC 0805 RC11 1K PM5 T
3779		2138	112 73271	CARBRST FLM CR25 270R PM5
3781		2138	101 13332	RST CRB CR12 A 3K3 PM5 A
3784		2138	101 00369	CABON RES. CR-12 1/6W 0 OHM
3785		2138	101 00369	CABON RES. CR-12 1/6W 0 OHM
3801		2138	101 13101	RST CRB CR12 A 100R PM5 A
3803		2138	101 13101	RST CRB CR12 A 100R PM5 A
3804		2138	101 13101	RST CRB CR12 A 100R PM5 A
3805		2138	101 13101	RST CRB CR12 A 100R PM5 A
3806		2138	101 13101	RST CRB CR12 A 100R PM5 A
3807		2138	101 13101	RST CRB CR12 A 100R PM5 A
3809		2138	101 13101	RST CRB CR12 A 100R PM5 A
3810		2138	101 13332	RST CRB CR12 A 3K3 PM5 A
3811		2138	101 13103	RST CRB CR12 A 10K PM5 A
3812		2138	101 13103	RST CRB CR12 A 10K PM5 A
3813		2138	101 13101	RST CRB CR12 A 100R PM5 A
3815		2138	101 13101	RST CRB CR12 A 100R PM5 A
3816		2138	101 13101	RST CRB CR12 A 100R PM5 A
3817		2138	101 13103	RST CRB CR12 A 10K PM5 A
3818		2138	116 13303	RST MFLM MF50S A 33K PM1 A
3819		2138	112 03007	RES ARRAY 4K7 9A
3820		2138	101 13103	RST CRB CR12 A 10K PM5 A
3821		2138	101 13103	RST CRB CR12 A 10K PM5 A
3823		2138	101 13331	RST CRB CR12 A 330R PM5 A
3824		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3825		2138	101 13103	RST CRB CR12 A 10K PM5 A
3826		2138	101 13331	RST CRB CR12 A 330R PM5 A
3828		2138	101 13103	RST CRB CR12 A 10K PM5 A
3829		2138	101 13332	RST CRB CR12 A 3K3 PM5 A
3830		2138	101 13103	RST CRB CR12 A 10K PM5 A
3831		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3832		2138	101 13123	RST CRB CR12 A 12K PM5 A
3833		2138	101 13103	RST CRB CR12 A 10K PM5 A
3834		2138	101 13103	RST CRB CR12 A 10K PM5 A
3835		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3836		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3837		2138	101 13123	RST CRB CR12 A 12K PM5 A
3839		2138	101 13101	RST CRB CR12 A 100R PM5 A
3840		2138	101 13101	RST CRB CR12 A 100R PM5 A
3841		2138	101 13102	RST CRB CR12 A 1K PM5 A
3842		2138	101 13102	RST CRB CR12 A 1K PM5 A
3843		2138	101 13102	RST CRB CR12 A 1K PM5 A
3844		2138	101 13102	RST CRB CR12 A 1K PM5 A
3845		2138	101 13102	RST CRB CR12 A 1K PM5 A
3856		2138	101 13101	RST CRB CR12 A 100R PM5 A
3857		2138	101 13101	RST CRB CR12 A 100R PM5 A
3858		2138	101 13101	RST CRB CR12 A 100R PM5 A
3861		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3862		2138	101 13472	RST CRB CR12 A 4K7 PM5 A
3863		2138	101 13472	RST CRB CR12 A 4K7 PM5 A

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ITEM		CODE NUMBER	DESCRIPTION
3871		2138 101 13473	RST CRB CR12 A 47K PM5 A
3872		2138 101 13103	RST CRB CR12 A 10K PM5 A
3873		2138 101 13564	RST CRB CR12 A 560K PM5 A
3874		2138 101 13223	RST CRB CR12 A 22K PM5 A
3875		2138 101 13103	RST CRB CR12 A 10K PM5 A
3876		2138 101 13564	RST CRB CR12 A 560K PM5 A
3877		2138 101 13223	RST CRB CR12 A 22K PM5 A
3878		2138 101 13473	RST CRB CR12 A 47K PM5 A
3879		2120 105 92137	MET FLM RST 1W 150R PM5 5E
3880		2138 101 13222	RST CRB CR12 A 2K2 PM5 A
3881		2138 101 13222	RST CRB CR12 A 2K2 PM5 A
3882		2120 105 92137	MET FLM RST 1W 150R PM5 5E
3891		2138 116 11004	RST MFLM MF50S A 100K PM1 A
3892		2138 116 15603	RST MFLM MF50S A 56K PM1 A
3893		2138 116 14702	RST MFLM MF50S A 4K7 PM1 A
3894		2138 116 11503	RST MFLM MF50S A 15K PM1 A
3895		2138 116 12403	RST MFLM MF50S A 24K PM1 A
5007		3138 168 75602	DEGAUSSING COIL
5101	⚠	3138 178 72231	POWER TRANSFORMER
5102		3138 178 70891	LINE FILTER 15 mH MIN.
5106		3138 178 79161	BAR COIL 7U5H PM10
5107		3138 178 79161	BAR COIL 7U5H PM10
5112		2438 535 98026	IND FXD BEAD EMI 100MHZ 35R R
5151		2422 535 94971	DRUM CHOKE COIL 100UH T
5152		2422 535 94971	DRUM CHOKE COIL 100UH T
5153		2422 535 94971	DRUM CHOKE COIL 100UH T
5155		2422 535 94971	DRUM CHOKE COIL 100UH T
5156		2422 535 94971	DRUM CHOKE COIL 100UH T
5301		2422 535 97608	COIL 1MUH8 PM10
5303		2438 535 98026	IND FXD BEAD EMI 100MHZ 35R R
5601		3138 178 71331	DRIVER TRANSF.
5602		3138 178 71732	DRUM COIL 20MH
5603		3138 168 75481	CENTERING TRANSFORMER
5604		3138 178 75991	DRUM CHOKE COIL 6MH
5606		3138 178 77891	LINEARITY COIL 1.6UH
5608		2438 535 98025	IND FXD BEAD EMI 100MHZ 60R R
5610		2438 535 98026	IND FXD BEAD EMI 100MHZ 35R R
5611		3138 178 77501	DAF TRANSFORMER
5612	⚠	3138 168 77551	LOT
5613		2422 535 94971	DRUM CHOKE COIL 100UH T
5701		2422 535 97608	COIL 1MUH8 PM10
5702		2422 535 97608	COIL 1MUH8 PM10
5721		3138 178 77951	COIL 0.33UH PM10
5732		3138 178 77951	COIL 0.33UH PM10
5752		3138 178 77951	COIL 0.33UH PM10
5771		3138 108 74951	BAR COIL 5UH PM10
5779		2422 535 97608	COIL 1MUH8 PM10
5781		2422 535 94971	DRUM CHOKE COIL 100UH T
5786		2422 535 97608	COIL 1MUH8 PM10
5801		2422 535 97416	COIL 33MUH PM10
6102		9319 002 63671	BRIDGE GBU6J
6103		9334 979 50683	DIODE RGP10J (GI)
6106		3198 010 10011	DIODE 1N4148 (UAW)
6107		3198 010 10071	DIODE BAV21 (UAW)
6108		9334 979 50683	DIODE RGP10J (GI)
6109		9337 516 60683	DIODE RGP10D (GI)
6113		3198 010 10011	DIODE 1N4148 (UAW)
6116		3198 010 27591	DIODE BZX79-C75(UAW)
6121		3198 010 10011	DIODE 1N4148 (UAW)
6124		3198 010 10011	DIODE 1N4148 (UAW)

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6125	3198 010 10011	DIODE 1N4148 (UAW)
6148	9335 435 00133	DIO REC BYV27-100
6151	9338 185 20133	DIO REC BYM26E A(PHSE) A
6152	9338 185 00133	DIODE BYM26C
6153	9335 435 00133	DIO REC BYV27-100
6154	3198 010 10071	DIODE BAV21 (UAW)
6155	9335 435 00133	DIO REC BYV27-100
6157	9334 979 50683	DIODE RGP10J (GI)
6158	3198 010 10071	DIODE BAV21 (UAW)
6159	3198 010 10011	DIODE 1N4148 (UAW)
6161	3198 010 10011	DIODE 1N4148 (UAW)
6162	3198 010 21291	DIODE BZX79-C12 (UAW)
6163	3198 010 10011	DIODE 1N4148 (UAW)
6164	3198 010 10071	DIODE BAV21 (UAW)
6165	3198 010 21591	DIODE BZX79-C15 (UAW)
6166	3198 010 10011	DIODE 1N4148 (UAW)
6301	3198 010 25681	DIODE BZX79-C5V6 (UAW)
6302	3198 010 25681	DIODE BZX79-C5V6 (UAW)
6303	3198 010 25681	DIODE BZX79-C5V6 (UAW)
6304	3198 010 25681	DIODE BZX79-C5V6 (UAW)
6405	9337 516 60683	DIODE RGP10D (GI)
6421	3198 010 10011	DIODE 1N4148 (UAW)
6422	3198 010 10011	DIODE 1N4148 (UAW)
6423	3198 010 10011	DIODE 1N4148 (UAW)
6424	3198 010 10011	DIODE 1N4148 (UAW)
6425	3198 010 10011	DIODE 1N4148 (UAW)
6426	3198 010 21591	DIODE BZX79-C15 (UAW)
6427	3198 010 23391	DIODE BZX79-C33
6428	3198 010 10011	DIODE 1N4148 (UAW)
6430	9337 516 60683	DIODE RGP10D (GI)
6501	3198 010 10011	DIODE 1N4148 (UAW)
6502	3198 010 10011	DIODE 1N4148 (UAW)
6503	3198 010 10011	DIODE 1N4148 (UAW)
6505	3198 010 10071	DIODE BAV21 (UAW)
6507	3198 010 21291	DIODE BZX79-C12 (UAW)
6508	3198 010 10011	DIODE 1N4148 (UAW)
6509	3198 010 10011	DIODE 1N4148 (UAW)
6510	3198 010 10011	DIODE 1N4148 (UAW)
6511	3198 010 10011	DIODE 1N4148 (UAW)
6601	9339 577 60683	DIODE SB140 (GI)
6602	9340 312 20127	DIO REC BY459-1500 S (ELCO) L
6603	3198 010 21591	DIODE BZX79-C15 (UAW)
6604	9322 115 74682	DIODE 31DF4
6605	9337 516 60683	DIODE RGP10D (GI)
6606	9337 516 60683	DIODE RGP10D (GI)
6609	3198 010 24781	DIODE BZX79-C4V7 (UAW)
6611	9334 979 50683	DIODE RGP10J (GI)
6621	9322 126 36682	DIODE 31DF6 6E
6624	3198 010 21291	DIODE BZX79-C12 (UAW)
6627	3198 010 10011	DIODE 1N4148 (UAW)
6630	9334 979 50683	DIODE RGP10J (GI)
6633	3198 010 10011	DIODE 1N4148 (UAW)
6634	9334 979 50683	DIODE RGP10J (GI)
6711	3198 010 25181	DIODE BZX79-C5V1 (UAW)
6721	3198 010 10531	SMD DIODE BAV103
6722	3198 010 10071	DIODE BAV21 (UAW)
6724	3198 010 10531	SMD DIODE BAV103
6731	3198 010 10531	SMD DIODE BAV103
6732	3198 010 10071	DIODE BAV21 (UAW)
6734	3198 010 10531	SMD DIODE BAV103

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ITEM		CODE NUMBER	DESCRIPTION
6751		3198 010 10071	DIODE BAV21 (UAW)
6752		3198 010 10071	DIODE BAV21 (UAW)
6754		3198 010 10531	SMD DIODE BAV103
6771		9334 939 60683	DIODE RGP10G (GI)
6801		3198 010 10011	DIODE 1N4148 (UAW)
6802		3198 010 10011	DIODE 1N4148 (UAW)
6804		3198 010 10011	DIODE 1N4148 (UAW)
6875		9322 146 03682	LED L-3WYGW
7102		3198 020 43591	TRANS. BC338-40
7103	⚠	9322 140 14667	PHOTOCOUPLER TCET1103G 4P
7105		9322 092 42687	FET POW 2SK 1940-01
7106		9352 645 03112	IC TEA1504AP/N2 14P
7113		9337 711 00686	IC TL431CLPRP 3P
7152		9335 282 90682	IC MC7808CT 3P
7153		9334 536 00682	IC MC7805CT 3P
7154		9338 268 50126	TRANS BT169B T
7155		3198 020 43011	TRANS BF422 (UAW)
7156		3198 020 40041	TRANS BC547C (UAW)
7157		3198 020 40041	TRANS BC547C (UAW)
7158		3198 020 43491	TRANS BC328-40
7159		3198 020 40041	TRANS BC547C (UAW)
7301		9352 616 28112	IC TDA4886A/V1 24P
7302		9352 674 03112	VE IC TDA 4822
7303		9322 106 11676	IC LE33CZ-AP 3P
7304		8238 274 34421	OSD IC MTV018-27
7322		3198 020 40081	TRANS BC548C (UAW)
7404		9322 144 36687	IC TDA8177F 7P
7410		9322 019 59682	IC UC3843AN
7411		3198 020 40041	TRANS BC547C (UAW)
7412		3198 020 40041	TRANS BC547C (UAW)
7413		3198 020 40041	TRANS BC547C (UAW)
7414		3198 020 40041	TRANS BC547C (UAW)
7501		3198 020 40041	TRANS BC547C (UAW)
7502		3198 020 43021	TRANS BF423 (UAW)
7503		9352 637 56112	IC TDA4841PS-V2 32P
7504		9332 377 80126	TRANS BC546B (UAW)
7505		3198 020 40161	TRANS BC558C (UAW)
7507		3198 020 40041	TRANS BC547C (UAW)
7601		9340 039 60126	TRANS BSN254A
7602		9340 263 00127	TRANS POW BU2527AF
7603		3198 020 43591	TRANS. BC338-40
7604		3198 020 43491	TRANS BC328-40
7605		9322 110 31687	FET POW MTP5P25 (MOTAO L)
7606		9332 514 50127	TRANS BD330
7607		9332 514 40127	TRANS BD329
7608		3198 020 43011	TRANS BF422 (UAW)
7609		9332 514 40127	TRANS BD329
7610		3198 020 40161	TRANS BC558C (UAW)
7611		9333 935 10602	IC LM358N 8P (PHILIPS)
7612		3198 020 40041	TRANS BC547C (UAW)
7613		3198 020 40041	TRANS BC547C (UAW)
7615		9322 145 62667	TRAN SLA5058
7618		3198 020 40041	TRANS BC547C (UAW)
7619		3198 020 40041	TRANS BC547C (UAW)
7621		9322 054 09687	TRAN.MOS MTP6N60
7622		9337 739 70687	MOSFET IRF640
7626		3198 020 43591	TRANS. BC338-40
7627		3198 020 43491	TRANS BC328-40
7629		3198 020 40041	TRANS BC547C (UAW)
7630		3198 020 40041	TRANS BC547C (UAW)

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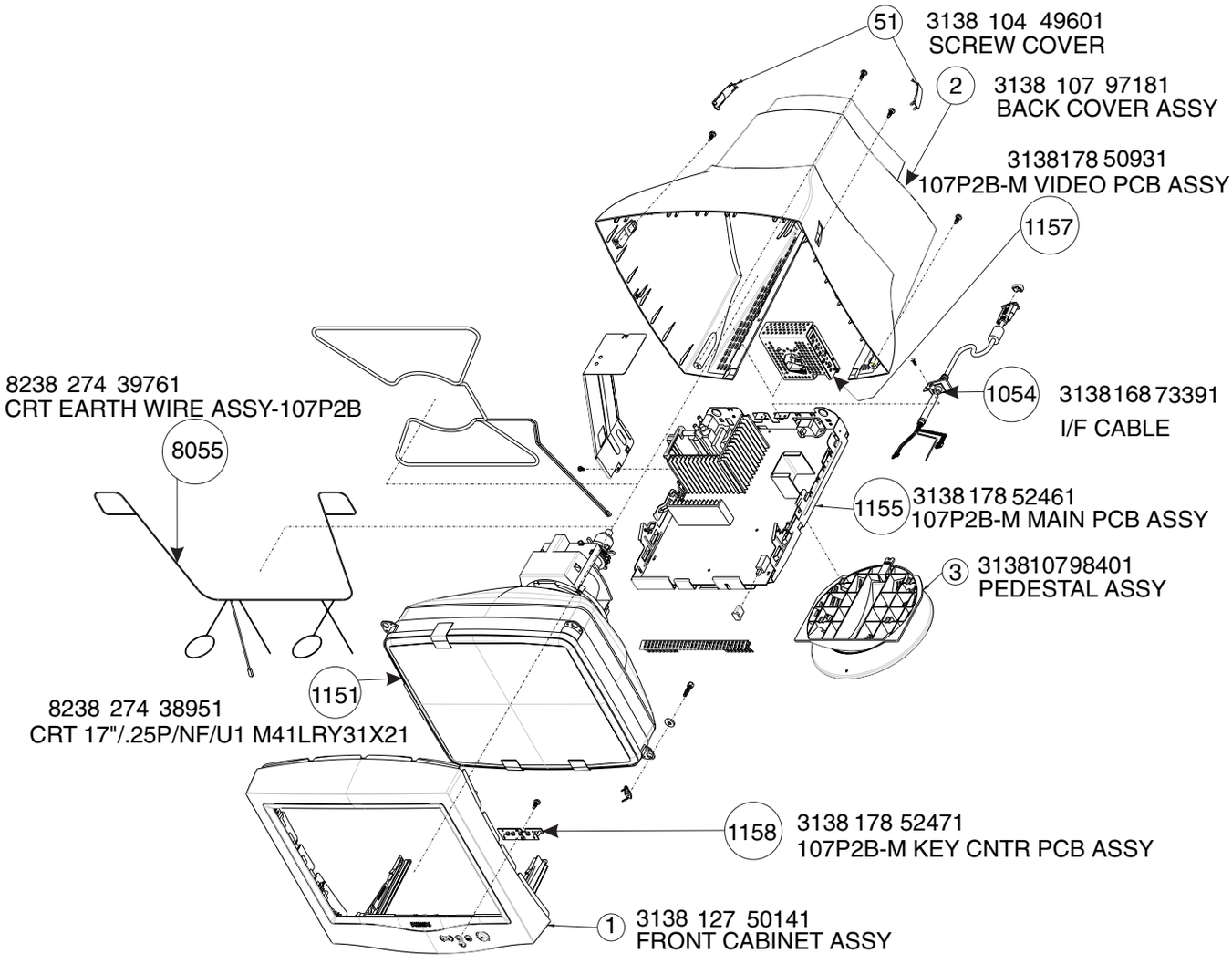
7636	3198 020 40041	TRANS BC547C (UAW)
7640	3198 020 43311	TRANS PH2369 (UAW)
7641	3198 020 40161	TRANS BC558C (UAW)
7642	9340 258 70126	TRA SIG MPSA44
7701	9322 112 34687	IC LM2405T 11P
7702	9336 056 80678	IC LM317LZRP 3P
7721	3198 020 43011	TRANS BF422 (UAW)
7722	3198 020 43011	TRANS BF422 (UAW)
7731	3198 020 43011	TRANS BF422 (UAW)
7732	3198 020 43011	TRANS BF422 (UAW)
7751	3198 020 43011	TRANS BF422 (UAW)
7752	3198 020 43011	TRANS BF422 (UAW)
7761	3198 020 40081	TRANS BC548C (UAW)
7801	8238 274 39361	IC 6148-K420PH-01A
7801	8238 274 38741	CPU IC WT62P2 42P
7801	8238 274 39361	IC 6148-K420PH-01A
7801	8238 274 38741	CPU IC WT62P2 42P
7803	3198 020 40161	TRANS BC558C (UAW)
7804	9322 126 62682	IC M24C16-BN6 8P
7805	3198 020 40041	TRANS BC547C (UAW)
7811	9352 628 49112	IC TDA7073A/N4 16P
601	3138 117 02631	E-D.F.U. ASSY-V/E
602	3138 117 02641	E-D.F.U.-V/E
178	3138 105 40011	SETTING UP GUIDE
450	3138 106 58651	CARTON
451	3138 106 56841	CUSHION - TOP
453	3138 106 56852	CUSHION - BTM
454	3138 106 56651	PE BAG
139	3138 104 50701	SPONGE
44	3138 104 48612	BASE
53	3138 104 48602	SWIVEL
60	3138 104 49481	FOOT RUBBER
153	3138 106 58051	P.E. BAG-E-D.F.U.
1	3138 127 50141	FRONT CABINET ASSY
2	3138 107 97181	BACK COVER ASSY
3	3138 107 98401	PEDESTAL ASSY
42	3138 127 50151	KNOB ASSY
46	3138 104 49891	KNOB-OSD
47	3138 104 53791	KNOB-POWER
48	3138 104 50672	LENS-POWER
127	3138 101 32302	SPRING-POWER
78	3138 101 66847	BOTTON PLATE
1	3138 103 53561	VIDEO PCB - MULTI
1	3138 103 53541	MAIN BOARD-CM25 107P GSIII
1	3138 103 53032	MULIT BOARD-KEY CNTR. (24GS3 10
56	3138 103 22571	STANDOFF
64	3138 104 36221	RUBBER SUPPORT
102	3138 103 21851	CABLE TIE
50	3138 104 51071	SWITCH CAP - 107P

Recommended Parts List

Model : 107P20/00H CM25-17" GS 3

ITEM	CODE	NUMBER	DESCRIPT
1	3138 127 50141		FRONT CABINET ASSY
2	3138 107 97181		BACK COVER ASSY
3	3138 107 98401		PEDESTAL ASSY
44	3138 104 48612		BASE
53	3138 104 48602		SWIVEL
42	3138 127 50151		KNOB ASSY
46	3138 104 49891		KNOB-OSD
47	3138 104 53791		KNOB-POWER
450	3138 106 58651		CARTON
451	3138 106 56841		CUSHION - TOP
453	3138 106 56852		CUSHION - BTM
454	3138 106 56651		PE BAG
153	3138 106 58051		P.E. BAG-E-D.F.U.
601	3138 117 02631		E-D.F.U. ASSY-V/E
602	3138 117 02641		E-D.F.U.-V/E
178	3138 105 40011		SETTING UP GUIDE
1053	2438 070 98118		MAINS CORD
1054	3138 168 73391		I/F CABLE
1101	2422 086 00208		FUSE T4AH 250V
1155	3138 178 52461		107P2B-M MAIN PCB ASSY
1157	3138 178 50931		107P2B-M VIDEO PCB ASSY
1158	3138 178 52471		107P2B-M KEY CNTR PCB ASSY
1258	3138 178 52481		EEPROM ASSY -107P2B (7804)
5101	3138 178 72231		POWER TRANSFORMER
5612	3138 168 77551		LOT
7301	9352 616 28112		IC TDA4886A/V1 24P
7304	8238 274 34421		OSD IC MTV018-27
7302	9352 674 03112		VE IC TDA 4822
7303	9322 106 11676		IC LE33CZ-AP 3P
7410	9322 019 59682		IC UC3843AN
7103	9322 140 14667		PHOTOCOUPLER TCET1103G 4P
7113	9337 711 00686		IC TL431CLPRP 3P
7105	9322 092 42687		FET POW 2SK 1940-01
7154	9338 268 50126		TRANS BT169B T
7404	9322 144 36687		IC TDA8177F 7P
7503	9352 637 56112		IC TDA4841PS-V2 32P
7605	9322 110 31687		FET POW MTP5P25 (MOTAO L)
7621	9322 054 09687		TRAN.MOS MTP6N60
7622	9337 739 70687		MOSFET IRF640
7801	8238 274 39361		IC 6148-K420PH-01A(mask)

Exploded View



0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

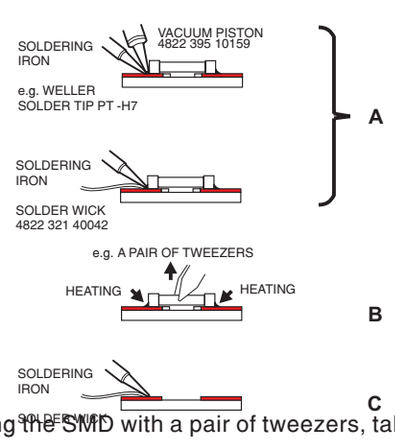
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

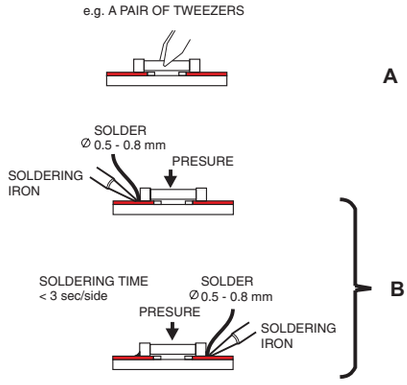
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

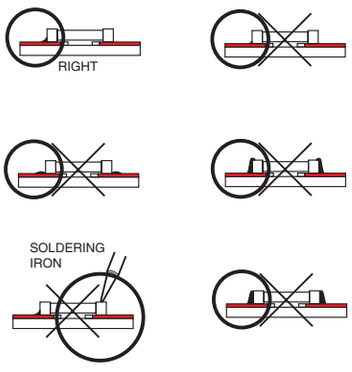
Fig. 2 MOUNTING



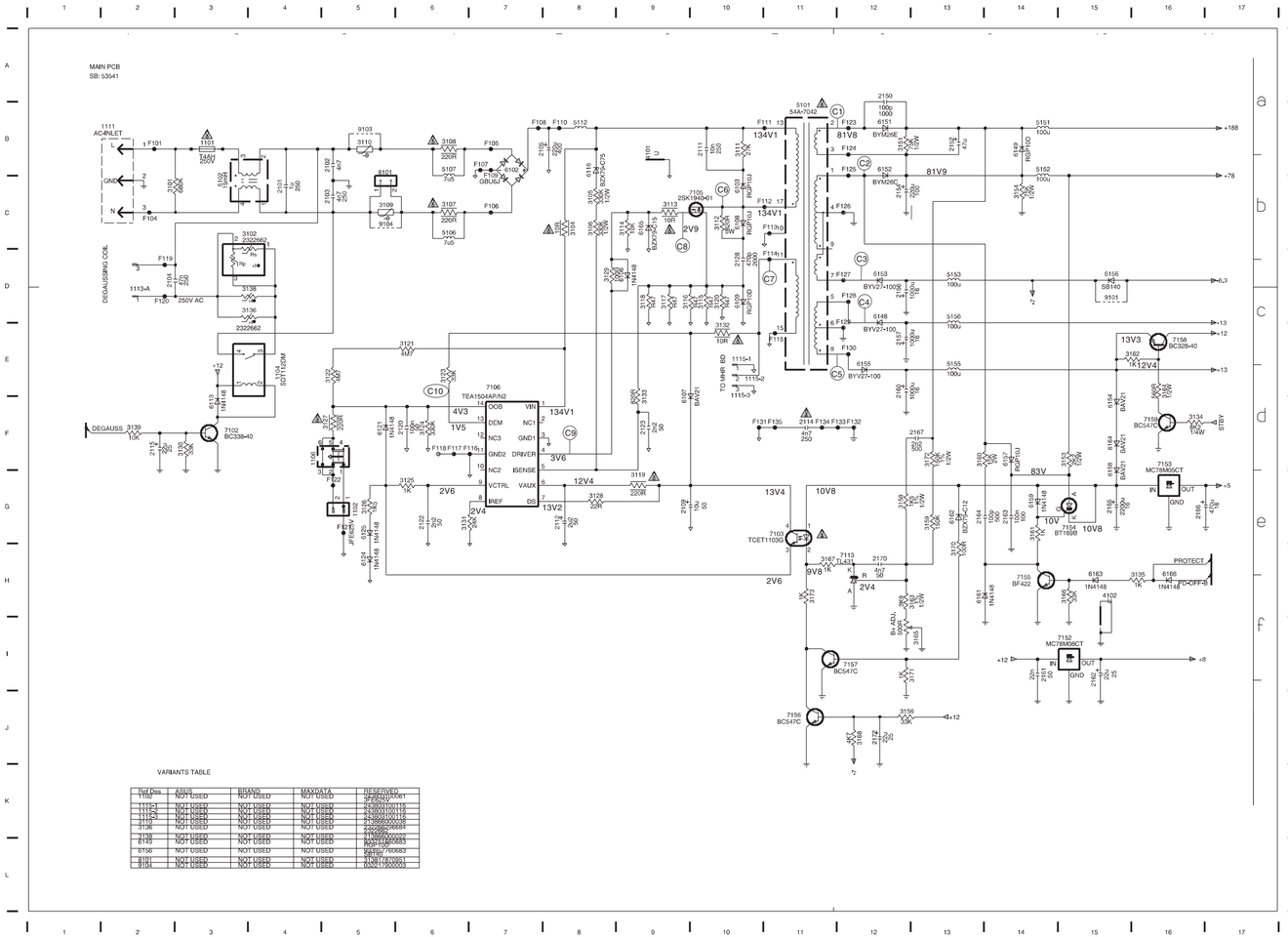
2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples



Power Supply Schematic Diagram



1101 B3
1102 G5
1104 E4
1106 F4
1111 A4
1113-A D2
1115 E10
2101 C4
2102 B5
2103 C5
2104 D2
2105 B8
2109 G9
2111 D10
2112 G8
2114 F11
2115 F2
2120 G6
2122 G6
2123 E9
2128 D10
2150 A12
2152 B13
2154 C12
2156 D12
2157 E12
2160 E12
2161 H4
2162 E15
2163 G14
2165 G13
2166 G13
2169 G10
2167 F13
2170 H12
2172 J12
3101 C2
3102 C3
3104 C8
3105 C8
3106 C8
3107 D6
3108 B6
3109 B5
3110 D5
3111 B10
3112 C10
3113 C9
3114 C9
3115 D10
3116 D9
3117 D9
3118 D9
3119 G9
3120 D10
3121 E8
3122 E6
3123 E6
3124 F6
3125 G6
3126 G5
3127 F5
3128 G8
3129 D8
3130 F3
3131 G6
3132 E10
3133 F9
3134 F16
3135 H16
3136 G5
3138 D4
3139 F2
3151 B12
3153 F15
3154 C14
3156 J12
3158 G12
3159 G13
3160 F13
3161 G14
3162 E16
3163 E16
3164 E16
3165 H13
3166 H15
3167 H11
3169 J12
3170 H13
3171 E12
3172 F13
3173 H11
4101 B9
4102 H15
5101 B11
5102 B8
5106 C8
5107 B6
5112 B8
5151 B14
5152 B14
5153 D13
5155 E13
5156 D13
6102 B7
6103 C10
6106 D9
6107 E9
6108 D10
6109 D10
6113 F3
6116 B8
6121 F5
6124 H5
6125 G5
6148 D12
6149 B14
6151 B12
6152 B12
6153 D12
6154 F12
6155 D12
6156 D15
6157 F14
6158 F15
6159 G14
6161 H13
6162 G13
6163 H15
6164 F15
6165 C9
6166 H16
7102 F3
7103 G11
7105 C10
7106 C12
7113 H12
7152 H15
7153 F16
7154 G15
7155 H14
7156 J11
7157 I11
7158 E16
7159 F16

8101 B5
9101 D15
9103 B5
9104 C5
F101 B2
F104 D2
F105 B7
F106 C7
F107 B7
F108 B7
F109 C7
F110 B8
F111 B11
F112 C11
F113 C11
F114 D11
F115 E11
F116 E11
F117 F6
F118 F6
F119 D2
F120 D2
F121 G5
F122 G6
F123 B12
F124 B12
F125 B12
F126 C12
F127 D12
F128 D12
F129 E12
F130 E12
F131 F12
F132 F12
F133 F12
F134 F11
F135 F11

Waveform C

C1 5101-2
100 V/div AC
5 uS/div

C8 7105-G
5 V/div AC
5 uS/div

C2 5101-1
100 V/div AC
5 uS/div

C9 7106-4
5 V/div AC
5 uS/div

C3 5101-7
5 V/div AC
5 uS/div

C10 7106-13
2 V/div AC
5 mS/div

C4 5101-5
10 V/div AC
5 uS/div

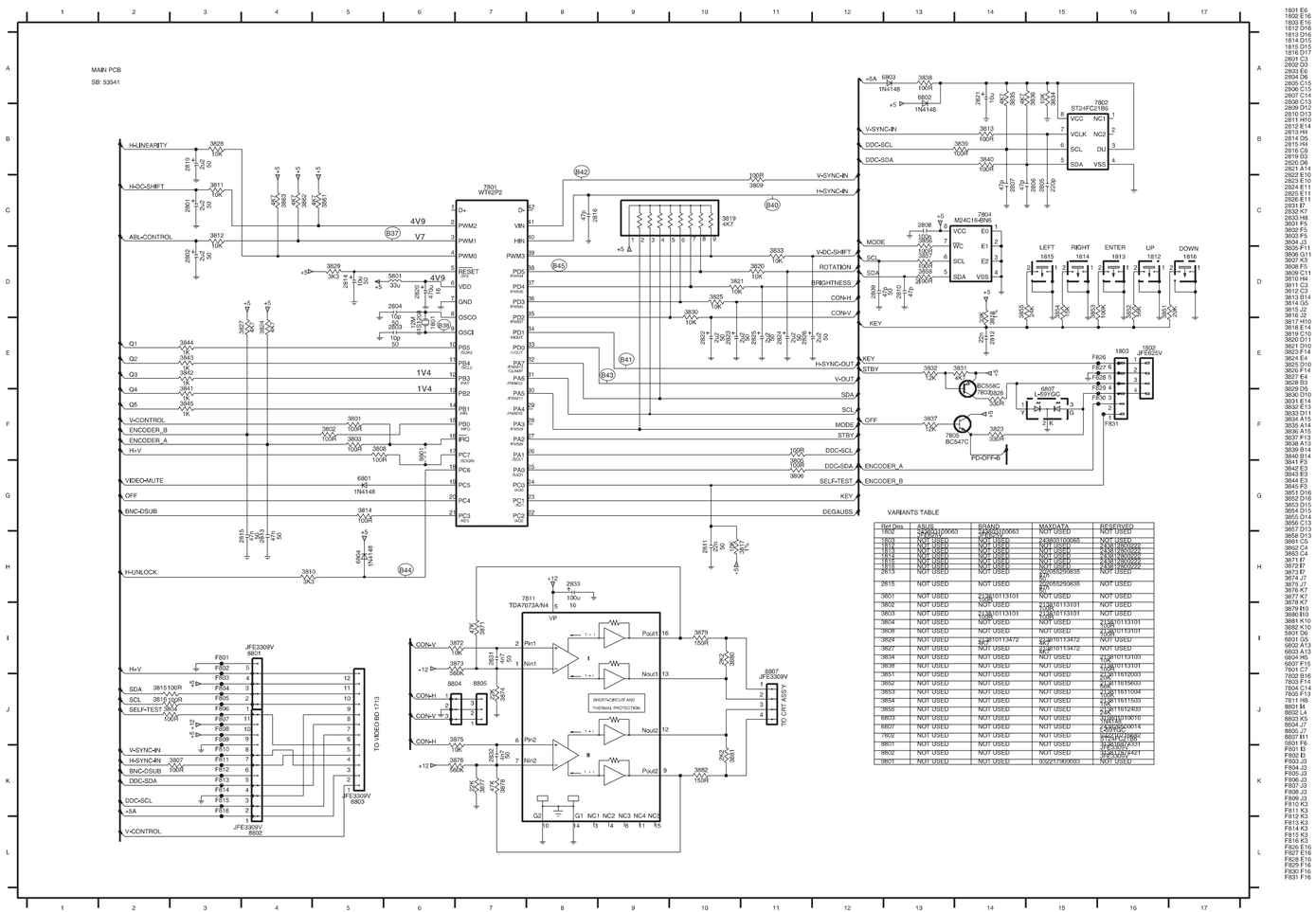
C5 5101-8
10 V/div AC
5 uS/div

C6 5101-17
100V/div AC
5 uS/div

C7 5101-11
10 V/div AC
5 uS/div

CPU Schematic Diagram

B3

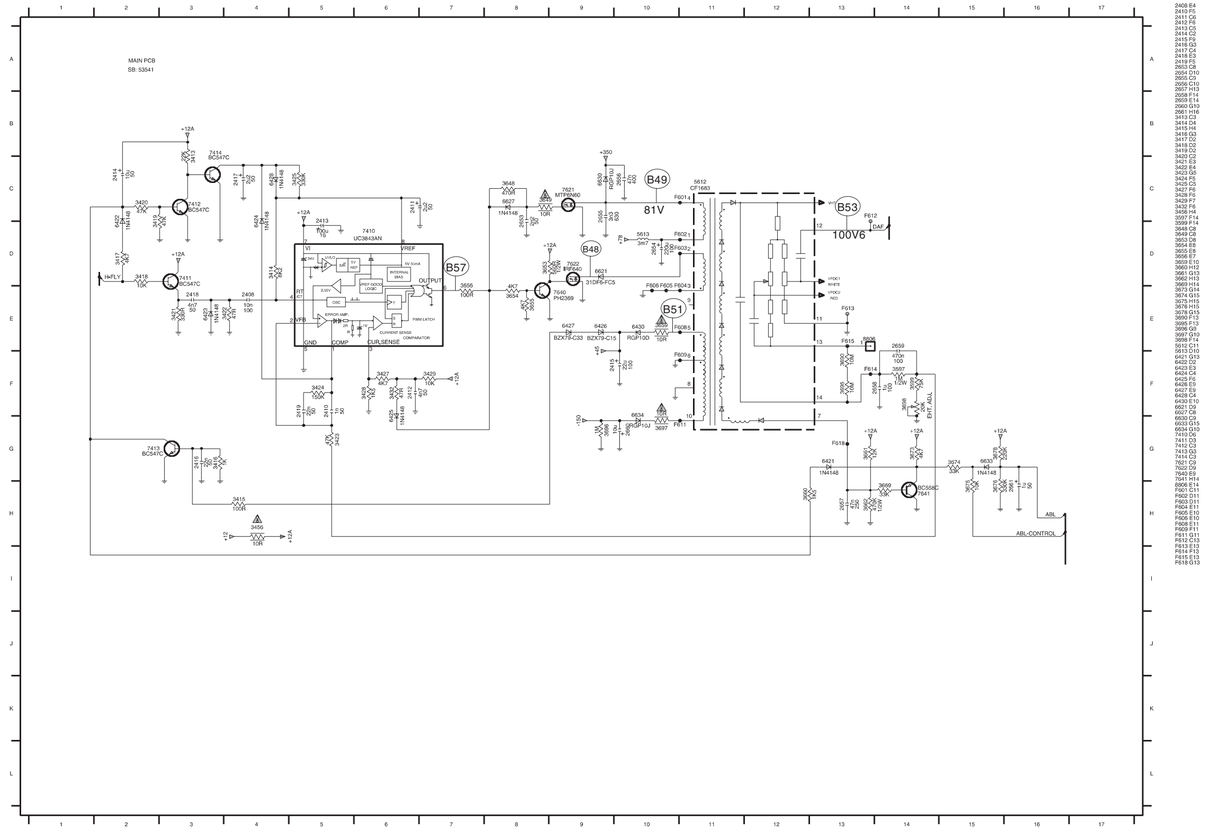


Ref Des	ASUS	BRAND	MAYDATA	RESERVED
1802	2438001200063	2438001200063	NOT USED	NOT USED
1803	NOT USED	NOT USED	2438010000065	NOT USED
1814	NOT USED	NOT USED	NOT USED	2438180000622
1815	NOT USED	NOT USED	NOT USED	2438180000622
1812	NOT USED	NOT USED	NOT USED	2438180000622
1816	NOT USED	NOT USED	NOT USED	2438180000622
1813	NOT USED	NOT USED	NOT USED	2438180000622
2810	NOT USED	NOT USED	0502255290835	NOT USED
2815	NOT USED	NOT USED	0502255290835	NOT USED
3801	NOT USED	2138101113101	NOT USED	NOT USED
3802	NOT USED	NOT USED	2138101113101	NOT USED
3803	NOT USED	2138101113101	2138101113101	NOT USED
3804	NOT USED	NOT USED	NOT USED	2138101113101
3808	NOT USED	NOT USED	NOT USED	2138101113101
3824	NOT USED	2138101113472	2138101113472	NOT USED
3827	NOT USED	NOT USED	2138101113472	NOT USED
3834	NOT USED	NOT USED	NOT USED	2138101113103
3838	NOT USED	NOT USED	NOT USED	2138101113101
3851	NOT USED	NOT USED	NOT USED	2138111912003
3852	NOT USED	NOT USED	NOT USED	2138111915603
3853	NOT USED	NOT USED	NOT USED	2138111911004
3854	NOT USED	NOT USED	NOT USED	2138111911503
3855	NOT USED	NOT USED	NOT USED	2138111912403
6803	NOT USED	NOT USED	NOT USED	2138111910010
6807	NOT USED	NOT USED	NOT USED	2438000200014
7802	NOT USED	NOT USED	NOT USED	2438180000622
8801	NOT USED	NOT USED	NOT USED	2438180000631
8802	NOT USED	NOT USED	NOT USED	2438180000621
8801	NOT USED	NOT USED	0502217000003	NOT USED

Go to cover page

H-Voltage Schematic Diagram

B2



Waveform B

B1 7502-C
10 mV/div AC
5 mS/div

B8 7503-11
2 V/div AC
5 mS/div

B15 7503-1
5 V/div AC
5 uS/div

B22 7605-D
50 V/div AC
5 mS/div

B29 7612-B
0.5 V/div AC
5 uS/div

B34 7615-7
20 V/div AC
5 uS/div

B40 7801-40
2 V/div AC
5 mS/div

B48 7622-D
20 mV/div AC
10 uS/div

B2 7504-C
20 mV/div AC
5 mS/div

B9 7503-12
0.5 V/div AC
5 mS/div

B16 7507-C
10 V/div AC
5 mS/div

B23 5603-5
100 V/div AC
5 uS/div

B30 7612-C
0.2 V/div AC
5 uS/div

B34 7615-3
20 mV/div AC
5 uS/div

B41 7801-34
2 V/div AC
5 mS/div

B49 5612-4
100 V/div AC
10 uS/div

B3 7503-14
2 V/div AC
5 mS/div

B10 7503-32
0.5 V/div AC
5 mS/div

B17 7404-6
10 V/div AC
5 mS/div

B24 7606-C
20 V/div AC
5 uS/div

B31 7613-B
0.5 V/div AC
5 uS/div

B35 7642-B
2 V/div AC
5 uS/div

B42 7801-41
2 V/div AC
5 mS/div

B51 5612-5
20 V/div AC
10 uS/div

B4 7503-16
0.5 V/div AC
5 mS/div

B11 7503-6
2 V/div AC
5 mS/div

B18 7404-3
10 V/div AC
5 mS/div

B25 7606-E
20 V/div AC
5 uS/div

B32 7619-B
0.5 V/div AC
5 uS/div

B36 7642-C
50 mV/div AC
5 uS/div

B43 7801-33
2 V/div AC
5 uS/div

B53 5612-12
100 V/div AC
5 uS/div

B5 7503-17
0.5 V/div AC
5 mS/div

B12 7503-4
1 V/div AC
5 mS/div

B19 7404-1
5 V/div AC
5 mS/div

B26 7607-C
20 V/div AC
5 uS/div

B33 7636-B
0.5 V/div AC
5 uS/div

B37 7801-3
2 V/div AC
5 uS/div

B44 7801-18
0.5 V/div AC
5 mS/div

B57 7410-6
5 V/div AC
5 uS/div

B6 7503-15
2 V/div AC
5 mS/div

B13 7503-8
0.5 V/div AC
5 uS/div

B20 7404-5
1 V/div AC
5 mS/div

B27 7601-G
5 V/div AC
5 uS/div

B34 7615-11
20 V/div AC
5 uS/div

B38 7801-9
2 V/div AC
0.5 uS/div

B45 7801-38
2 V/div AC
20 uS/div

B7 7503-24
2 V/div AC
5 mS/div

B14 7503-29
0.5 V/div AC
5 uS/div

B21 7603-E
0.5 V/div AC
5 mS/div

B28 7601-D
50 V/div AC
5 uS/div

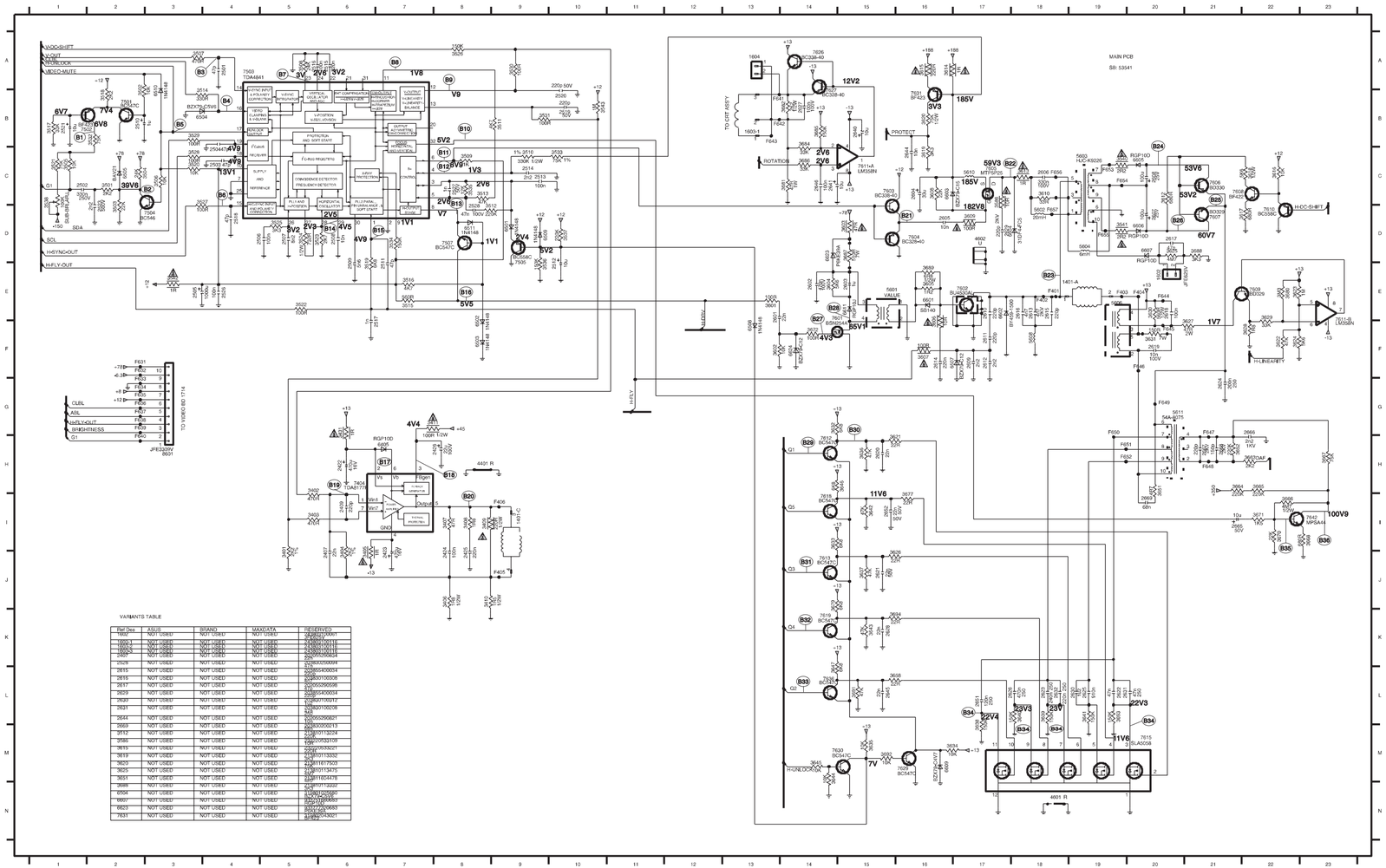
B34 7615-9
20 V/div AC
5 uS/div

Back

Forward

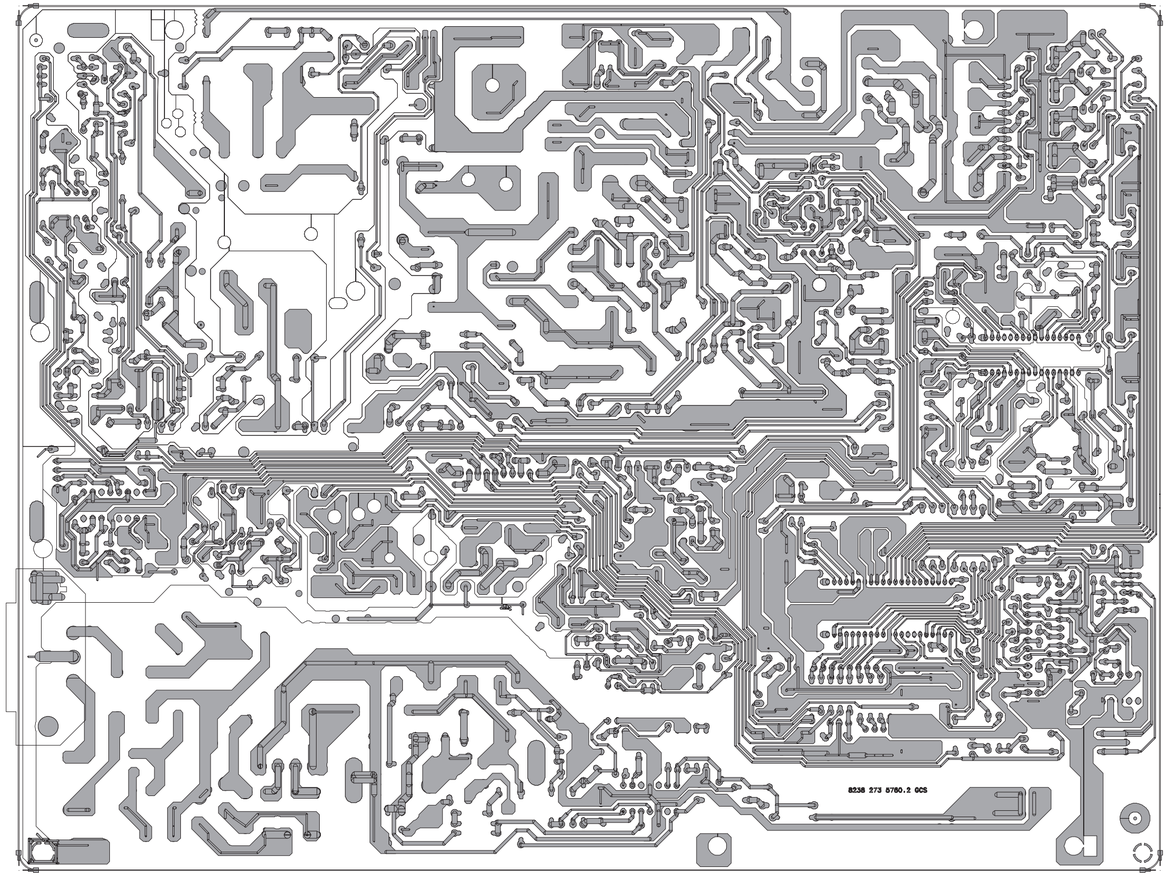
Deflection Schematic Diagram

B1



Back
Forward

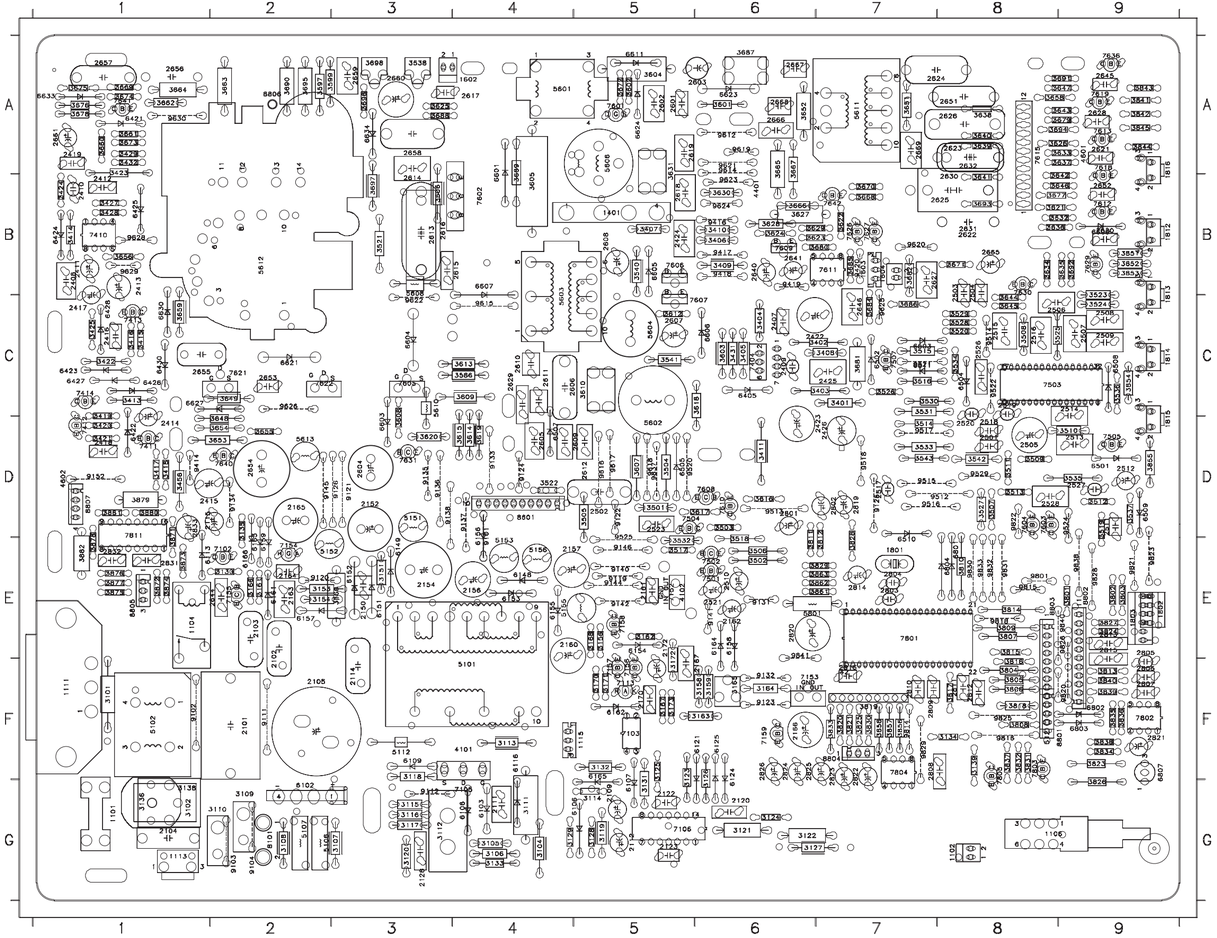
Main Panel(B,C)C.B.A.(CUS)



Click for Main Panel C.B.A. (HMC)

Go to cover page

Main Panel (B,C) CBA(HMC)



Click here for Main Panel(B,C) C.B.A. (CUS)

1101 G1 1102 G8 1104 E1 1106 G8 1111 F1 1113 G1 1115 F5 1401 B5 1602 A4 1603 B7 1604 B7 1801 E7 1802 E9 1803 E9 1812 B9 1813 B9 1814 C9 1815 D9 1816 A9 2101 F2 2102 F2 2103 E2 2104 G1 2105 F2 2109 G5 2111 G4 2112 G5 2114 F3 2115 D1 2120 G6 2122 G5 2123 G5 2128 G3 2150 E3 2152 D3 2154 E3 2156 E4 2157 E4 2160 E4 2161 E5 2162 E6 2163 E2 2164 E2 2165 D2 2166 F6 2167 F6 2170 F5 2172 E5 2407 C6 2408 B1 2409 C6 2410 B1 2411 B1 2412 B1 2413 B1 2414 D1 2415 D1 2416 C1 2417 C1 2418 D1 2419 A1 2422 C6 2423 D7 2424 B5 2425 C7 2426 D7 2501 D8 2502 D5 2503 B8 2504 B8 2505 D8 2506 C8 2507 C9 2508 C9 2509 C9 2510 E6 2511 D9 2512 D9 2513 D9 2514 C9 2515 C8 2516 C8 2517 D7 2518 D8 2519 C8 2520 D8 2521 E6 2523 D5 2526 C8 2527 D9 2528 D8 2601 A5 2602 A5 2603 A6 2604 D3 2605 D4 2606 C4 2607 C5 2608 B5 2609 D5 2610 C4 2611 C4 2612 D5 2613 B3 2614 B3 2615 B4 2616 B3 2617 A4 2618 B5 2619 A5 2620 B9 2621 A9 2622 B8 2623 A8 2624 A7 2625 B8 2626 A8 2627 B7 2628 A9 2629 C4 2630 B8 2631 B8 2632 A8 2640 B6 2641 B6 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3620 D3 3621 B8 3622 B7 3623 B6 3624 B6 3625 A3 3626 A8 3627 B6 3628 B6 3629 B6 3630 B6 3631 A5 3632 B9 3633 A9 3634 B8 3635 B9 3636 B8 3637 A9 3638 A8 3639 A8 3640 A8 3641 B8 3642 B9 3643 A9 3644 C8 3645 C8 3646 B9 3647 A9 3648 D2 3649 C2 3651 A7 3652 A6 3653 D2 3654 D2 3655 D2 3656 B1 3658 A8 3659 C1 3660 A1 3662 A1 3663 A2 3664 A1 3665 A6 3666 B6 3667 A6 3668 B7 3669 A1 3670 B7 3671 B8 3672 A5 3673 A1 3674 A1 3675 A1 3676 A1 3677 B8 3678 A1 3679 A9 3680 B7 3681 C7 3682 B7 3684 C7 3685 B7 3686 C7 3687 A6 3688 A3 3689 A4 3690 A2 3691 A9 3692 B9 3693 B8 3694 A8 3695 A2 3696 A3 3697 B3 3698 A3 3801 E9 3802 E9 3803 E9 3804 F8 3805 F8 3806 F8 3807 E8 3808 F8 3809 E8 3810 E8 3811 E6 3812 E7 3813 F9 3814 E8 3815 E8 3816 F8 3817 F8 3818 F8 3819 F7 3820 F7 3821 F7 3823 F9 3824 E9 3825 F7 3826 G9 3827 E9 3828 E7 3829 E7 3830 F7 3831 F8 3832 F8 3833 F7 3834 F9 3835 F9 3836 F9 3837 F8 3838 F9 3839 F9 3840 F9 3841 A9 3842 A9 3843 A9 3844 A9 3845 A9 3847 B9 3848 B9 3849 B9 3850 B9 3852 B9 3853 B9 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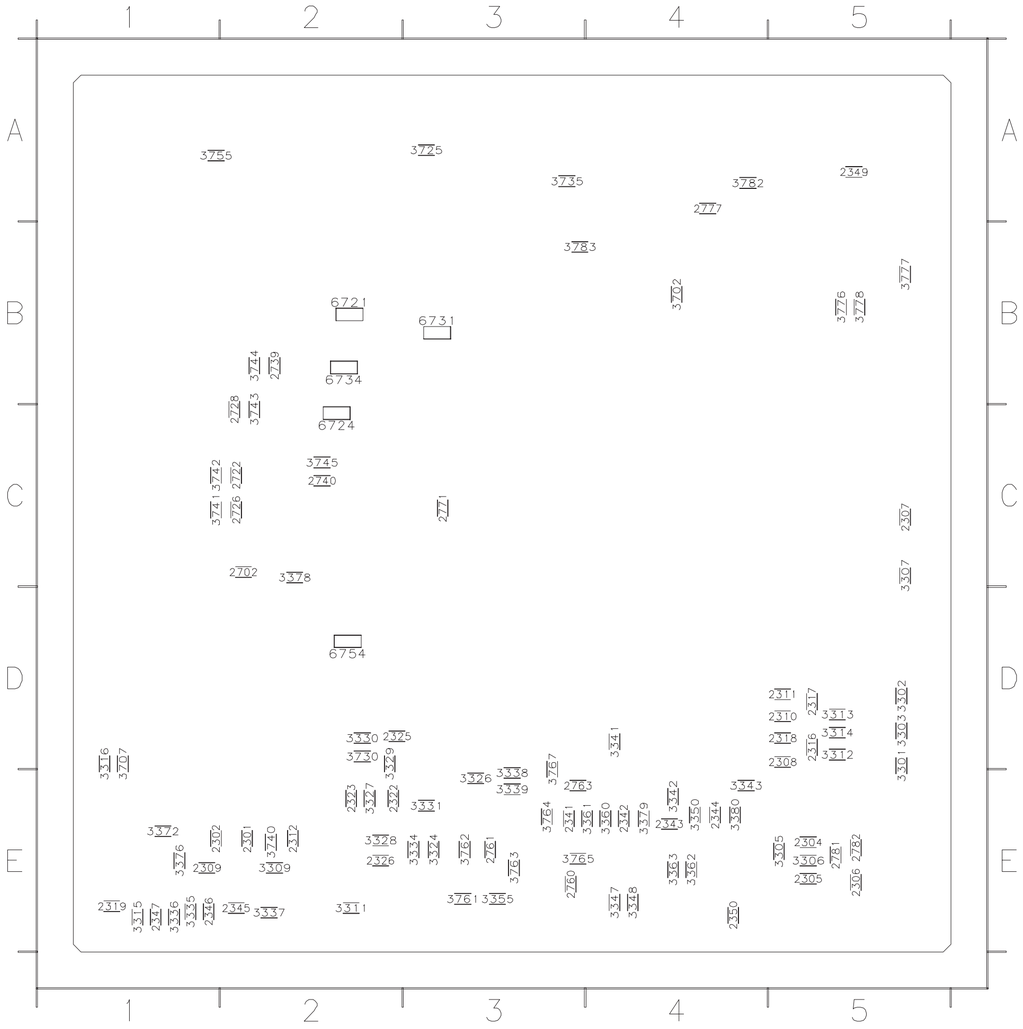
Video Panel (A) C.B.A. (SMC)



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2307	C5	3379	E4
2308	D5	3380	E4
2309	E1	3702	B4
2310	D5	3707	D1
2311	D5	3725	A3
2312	E2	3730	D2
2316	D5	3735	A3
2317	D5	3740	E2
2318	D5	3741	C1
2319	E1	3742	C1
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2323	E2	3744	B2
2325	D2	3745	C2
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2771	C3		
2777	A4		
2781	E5		
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3361	E4		

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Click here for Video Panel (A) C.B.A. (CUS)
Click here for Video Panel (A) C.B.A. (HMC)
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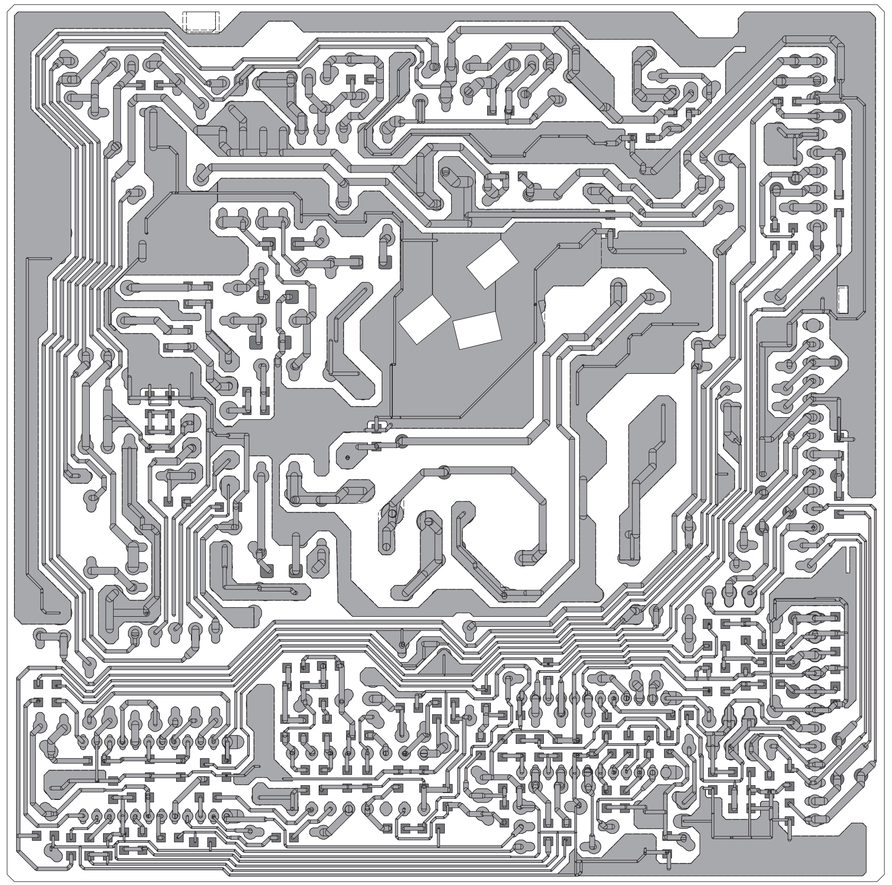
Video Panel (A) C.B.A(CUS)



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Click here for Video Panel C.B.A. (SMC)

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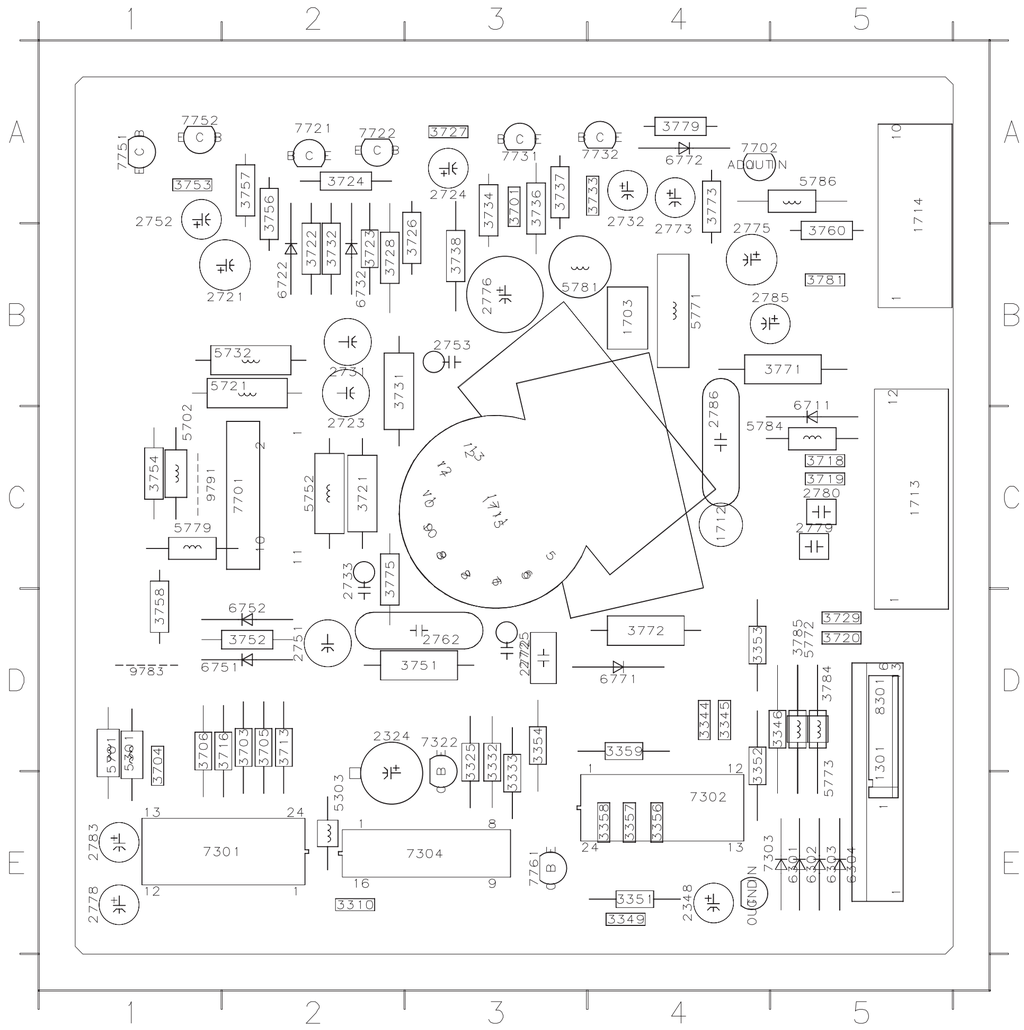

Click here for Video Panel (A) C.B.A. (CUS)

Click here for Video Panel (A) C.B.A. (SMC)

Video Panel (A) Schematic Diagram & Waveforms for Diagram (A)

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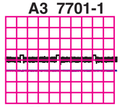
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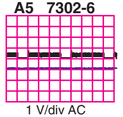
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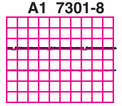
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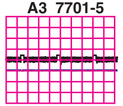
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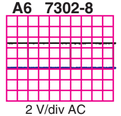
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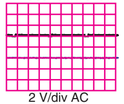
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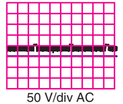
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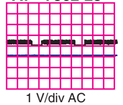
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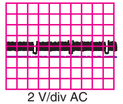
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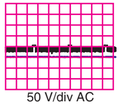
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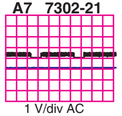
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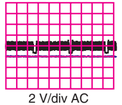
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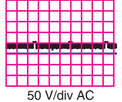
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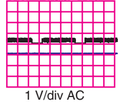
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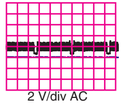
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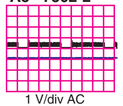
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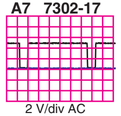
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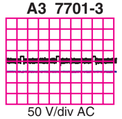
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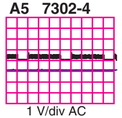
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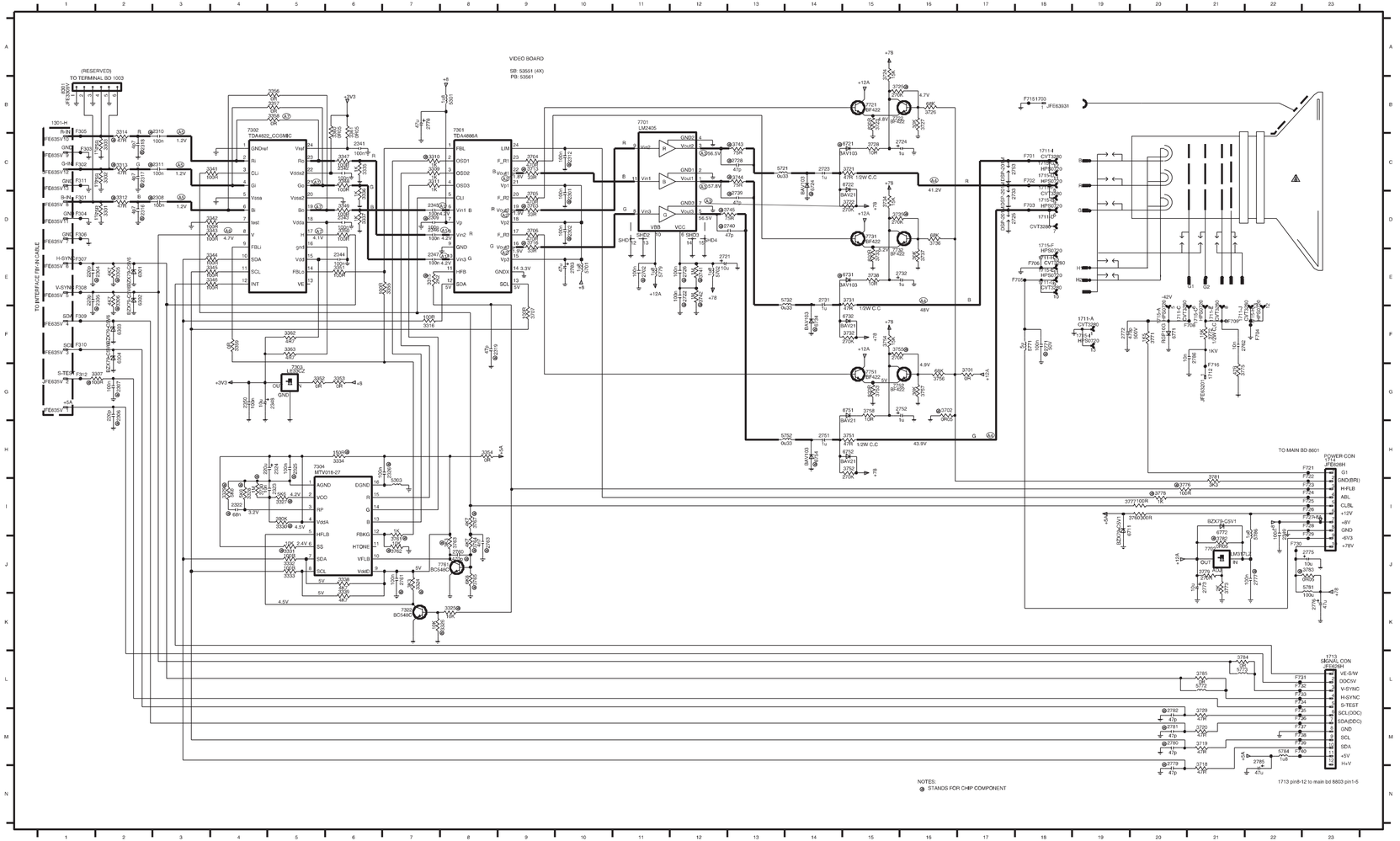

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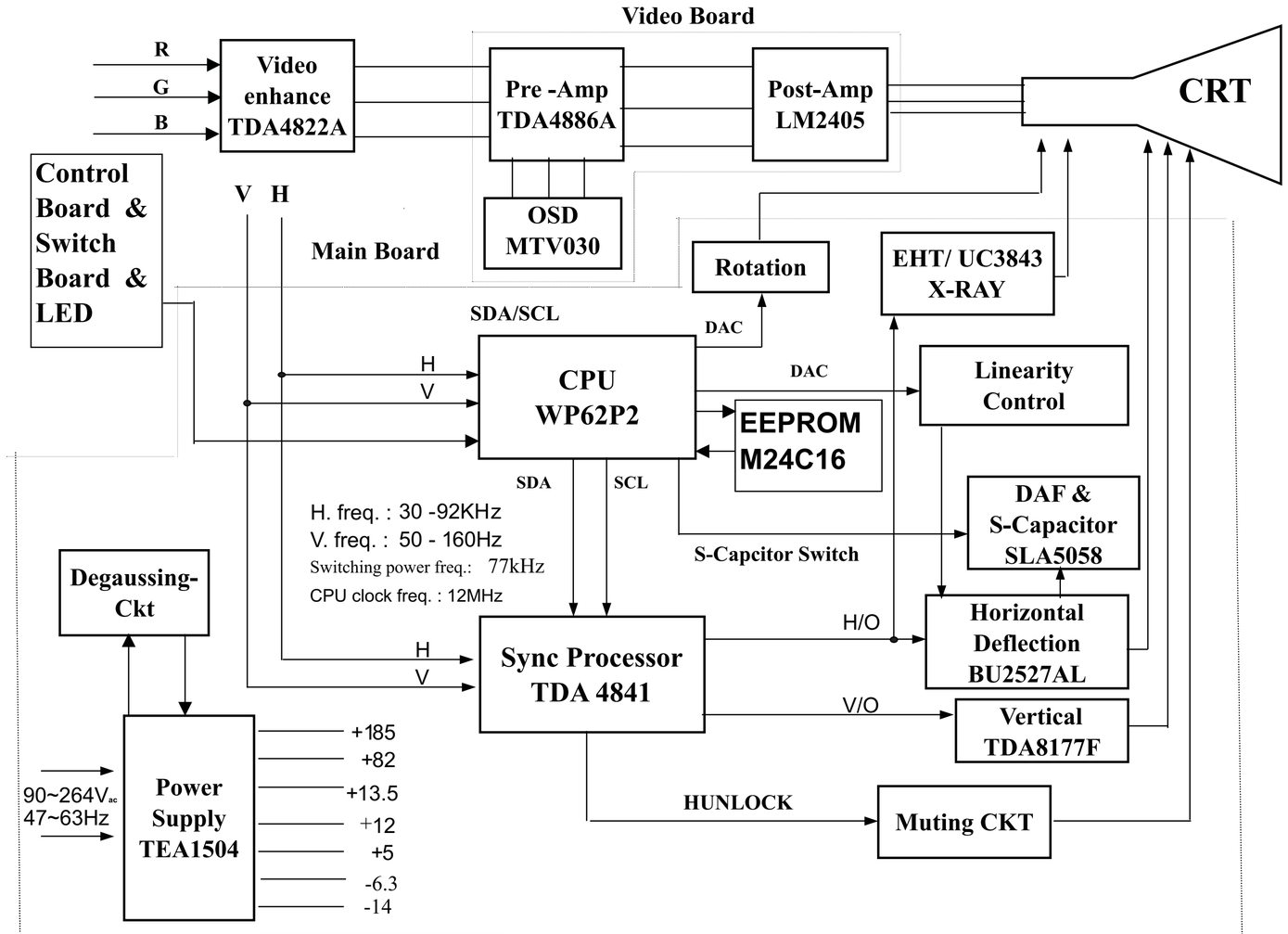

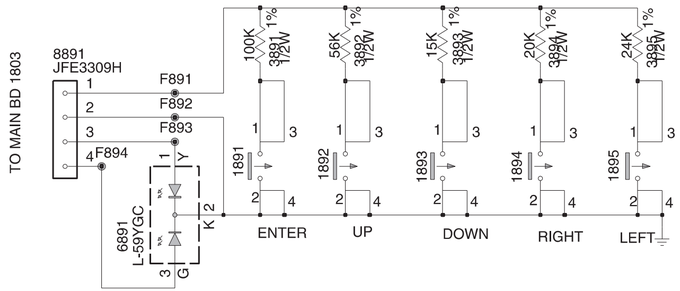

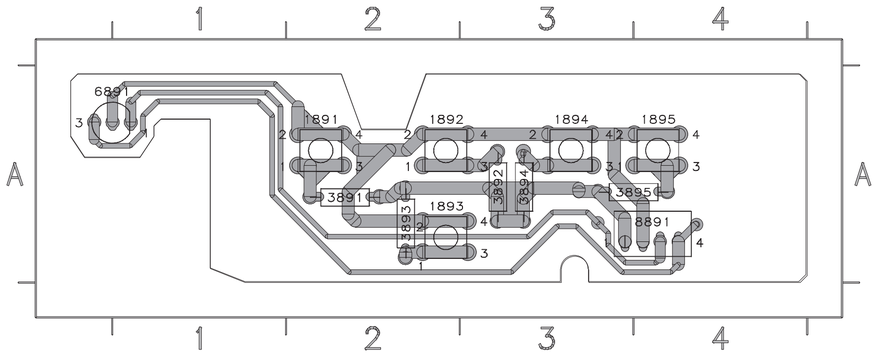

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1894 A3
1895 A4
3891 A2
3892 A3
3893 A2
3894 A3
3895 A3
6891 A1
8891 A4

Safety test requirements

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All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both **Hipot** and **Ground Continuity** testing.

HI-POT TEST INSTRUCTION

1. Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+R ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation	5 mA	
Ramp time	set at 2 seconds		

2.2.1 The test with AC voltage is only for production purpose, **Service center shall use DC voltage.**

2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute. No breakdown during the test.

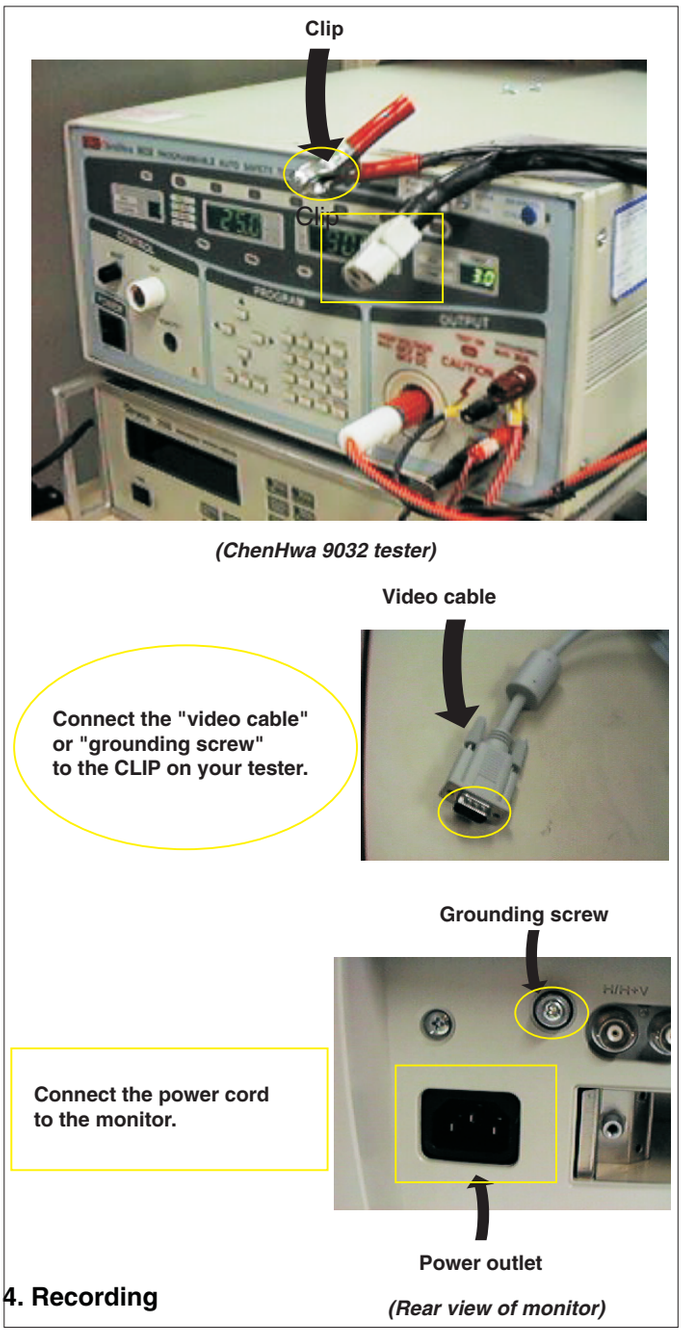
2.2.3 The test voltage must be maintained within the specified voltage + 5%.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Back Forward

Electrical Adjustments

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has 9 factory-preset modes as below.

1.	640 x 350	31.5 Khz	70 HZ(VESA)
2.	640 x 400	31.5 Khz	70 HZ(VESA)
3.	640 x 480	43.2 Khz	85 HZ(VESA)
4.	800 x 600	46.9 Khz	75 HZ(VESA)
5.	800 x 600	53.7 Khz	85 HZ(VESA)
6.	1024 x 768	60.0 Khz	75 HZ(VESA)
7	1024 x 768	68.7 Khz	85 HZ(VESA)
8.	1280 x 1024	80.0 Khz	75 Hz (VESA)
9.	1280 x 1024	91.1 Khz	85 Hz (VESA)

0.2 With normal VGA card:

If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 1024 x 768, 68.7 kHz/85 Hz (only) as signal source.

0.3 AC/DC Measurement:

The measurements for AC waveform and DC figure is based on 1024 x 768 68.7 kHz/85 Hz resolution mode with test pattern "gray scale". Power input: 110V AC

1. B+ supply voltage (3165) 84Vdc

- Apply a video signal in the 1024 x 768 with 68.7 kHz/85Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Pre-set trimming potentiometer 3165(+) and 3698(EHT) in mid-position.
- Set Vg2 (screen) to fully Counter-clockwise (zero beamcurrent).
- Connect a dc voltmeter between the joint of capacitor 2152 and ground (common ground).
- Set the B+ trimming potentiometer 3165 so that the reading on the dc voltmeter is 185 V +/- 0.2 Vdc.

2. High-voltage EHT (3698)

- Apply a video signal in the 1024 x 768 with 68.7kHz/85Hz mode.
- Select the "cross-hatch" pattern.
- Set the brightness control and the contrast control to the minimum position.
- Connect a "high-voltage voltmeter" between the high-voltage connection of the picture tube and earth.
- Turn on the power.
- Set the EHT trimming potentiometer 3698 so that the "high-voltage voltmeter" reads 25.0 kV +/- 0.2 kV .
- Turn off the power.
- Remove the "high-voltage voltmeter" from the picture tube.
- Turn on the power again.

3.Monitor the following auxiliary voltages.

SOURCE ACROSS C2152 and GND.	+185.0V +/- 1.5 VDC
SOURCE ACROSS C2154	+ 82.0V +/- 1.5 VDC.
SOURCE ACROSS C2156	- 6.4 V +/- 0.3 VDC.
SOURCE ACROSS C2160	+13.5V +/- 0.5 VDC.
SOURCE ACROSS C2157	- 14.0V +/- 0.5 VDC.

4. General conditions for alignment

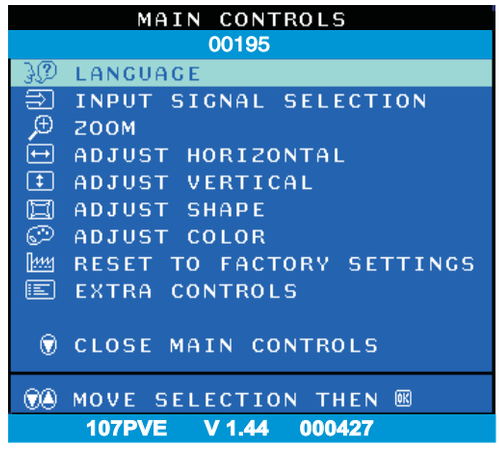
4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=430 +/- 50 mG, Z=0
Southern hemisphere : H=0, V=-520 +/-50 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground. **Note: Do not use heatsink as ground.**
4.5 Adjust brightness controls to center position except for contrast control which should be set to MAX.

5. To access factory mode:

- Turn off monitor (don't turn off PC)
- Press " ◄► " and " ⏻ " simultaneously on the front control panel ,then press " MENU ",wait till the OSD menu with characters " factory mode (below OSD menu)" come on the screen of monitor.



- If OSD menu disappears on the screen of monitor, press " MENU " again (anytime), then the OSD menu comes on the screen again.
- using " ▲▼ " : to select OSD menu.
- using " ◄► " : to increase or decrease the setting.

(Please also refer to page 8 to page 15 for OSD adjustment)

- Using " MENU " to confirm the selection.

5.1. To leave factory mode

After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

Electrical Adjustments (Continued)

Go to cover page

6. Picture geometry setting

- Apply a video signal with cross-hatch pattern.
- Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode.
- Set contrast control at Max. position, and brightness control in the mid-point.

6.4 Alignment of horizontal geometry and vertical geometry
6.4.1 Adjust the H-width to 306 mm
6.4.2 Adjust the H-phase to center position.
6.4.3 Adjust V-size to 230mm.
6.4.4 Adjust V-Position to center.
Adjust/Trapezium/pincushion
6.4.5 Adjust picture tilt via I²C BUS for correct top/bottom lines.
6.4.6 Adjust the top and bottom corner by I²C to straight vertical lines of the left and right edge.
6.4.7 Adjust the parallelogram by I²CBUS to get optimum vertical line.
6.4.8 Adjust the unbalance pin by I²C BUS to get optimum vertical line.
6.4.9 Adjust the unbalance Vertical linearity balance by I²C BUS to get optimum vertical linearity balance.
6.4.10Adjust the unbalance Vertical linearity by I²C to get optimum vertical linearity.
6.5 Adjust size/centering/trapezium/pincushion/parallelogram of all other preset modes via I²C bus.

7. Alignment of Vg2 cut-off point, white tracking

Equipment : 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)
VG2 [(screen), at the bottom of the L.O.T.].
* Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).
* Use color-analyzer (Minolta CA-100) to adjust cutoff and white uniformity.
Brightness = 50%, Sub-Contrast = 190%, ABL = 128% (I² C)
OSD R/G/B cut-off and R/G/B gain can be accessed, with initial data:
9300 °K
R cutoff = 128%, R gain = 180% (I² C)
G cutoff = 128%, G gain = 180% (I² C)
B cutoff = 128%, B gain = 180% (I² C)
6500 °K
R cutoff = 128%, R gain = 160% (I² C)
G cutoff = 128%, G gain = 160% (I² C)
B cutoff = 128%, B gain = 160% (I² C)
5500 °K
R cutoff = 128%, R gain = 150% (I² C)
G cutoff = 128%, G gain = 150% (I² C)
B cutoff = 128%, B gain = 150% (I² C)

Step 1: To press power button switch and left & right simulaneously to entert the character "FACTORY MODE" as shown in Fig.2.1, press " " to access the OSD menu for R/G/B gain & cutoff as shown in Fig. 2.2.
Step 2: Press " " for function selection as shown in Fig. 2.2.

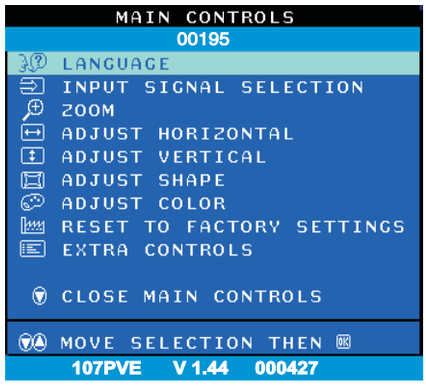


Fig. 2.1

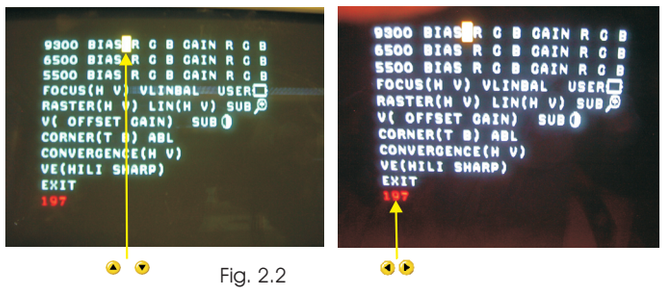


Fig. 2.2

BIAS R G B : R(red) G(green) B(blue) cutoff
GAIN R G B : R(red) G(green) B(blue) gain
V FOCUS : Vertical Focus
VLIN BAL : Vertical Linearity Balance
USER : Horizontal size range
RASTER H: Horizontal DC (raster) Shift
RASTER V: Vertical DC (raster) Shift
HLIN : Horizontal Linearity
V LIN : Vertical Linearity
SUB : Zoom range
SUB : Sub Contrast
V OFFSET : Vertical offset
V GAIN : Vertical Gain
ABL : Auto Beam Limit
T CORNER: Corner Correctionof TOP
B CORNER: Corner Correctionof BOTTOM
CONVERGENCE(V H):CONVERGENCE Correction of Vertical, Horizontal.
VE(HILI SHARP): Video Enhance of HIghLIght,SHARPness
(VE Adjustment Range from 1(10%) to 4(40%))
(VE Is also LightFrame)

7.2 Connect the video input, set brightness control at center, and contrast control at maximum

7.3 set

	9300°K	6500°K	5500°K
R cut-off	128	128	128
G cut-off	128 (Fix)	128 (Fix)	128 (Fix)
B cut-off	128	128	128
R gain	180 (I²C)	160 (I²C)	150 (I²C)
G gain	180 (Fix) (I²C)	160 (Fix) (I²C)	150 (Fix) (I²C)
B gain	180 (I²C)	160 (I²C)	150 (I²C)

7.4 Adjust 9300K color:
With the help of a factory calibrated color analyzer CA 100 set low R,G,B scale 100=0.07FL,x=0.283,y=0.297
Adjust Vg1 until brightest gun at 100 on low brightness scale.
7.5 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.

7.5 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.
7.6 Set Ca100 high R,G,B scale 100 = 40+/- 1FL,X=0.283,y=0.297
Adjust G gain at 100 scale on high brightness scale.
7.7 Adjust R,B gain so that blue and green havng as red on the high brightness scale
7.8 Set contrast at minimum and repeat 7.5,7.6,7.7,until RGB three guns get same readings on low and high brightness scale.
7.9 Adjust 6500K color:
With the help of a factory calibrated color analyzer CA 100 set low R,G,B scale 100=0.07FL,x=0.313,y=0.329
Adjust Vg1 until brightest gun at 100 on low brightness scale.
7.10 Adjust R,G,B cut-off for all gun reading to get 100 on low brightness scale.
7.11 Set CA100 high R,G,B scale 100 = 40+/- 1FL,X=0.313,y=0.329
Adjust G gain at 100 scale on high brightness scale.
7.12 Adjust R,B gain so that blue and green have the same reading as red on the high brightness scale
7.13 Set contrast at minimum and repeat 7.10,7.11,7.12,until RGB three guns get same readings on low and high brightness scale.
7.14 Adjust SUB-CON to get Y=40+/-6FL.
7.15 Apply full white pattern, adjust ABL to reach 31 +/- 0.5 FL(9300K)
7.16 Check full white at contrast and brightness at minimum, the foreground shall be extinguished.

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Electrical Adjustments (Continued)

8. Focus adjustment

Apply a signal of " @ " character. at 68.7 kHz/85 Hz mode set the brightness to mid-position , contrast to max - position and adjust the focus for optimal sharpness in the area within 2/3 from the screen center.

9. Loading DDC code

The DDC HEX data(refer sheet 190) should be written into the EEPROM (7804) ,0~127 bytes by EEPROM writer or equivalent method.

10. To access service mode

The service mode is for service purpose which convenient to perform repair service and pre-warm up monitor before test or re-adjustment colour temperature without any video signal generator requirement.

10.1 Remove video signals
10.2 Press " " and " " simultaneously on the front control panel ,then press " ",release all bottons till the full white pattern come on the screen of monitor.
10.3 In the beginning of service mode (full white pattern), the monitor will working at 48kHz of horizontal frequency, after 55 seconds, it will switch to 81kHz automatically, then change mode between two modes constantly every 55 seconds.
10.4 You may quit service mode by either turn off and on or feed video signals to the monitor.

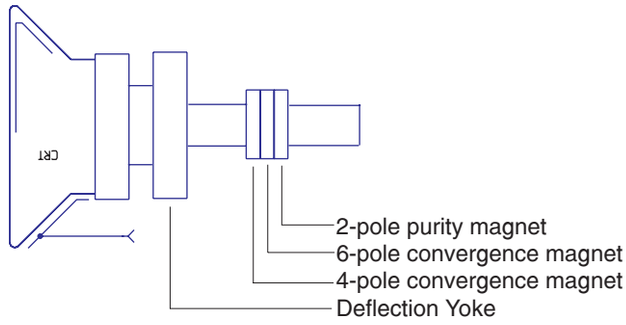
11. Purity adjustment

- Make sure the monitor is not exposed to any external magnetic field.
- Produce a full red pattern on the screen, adjust the purity magnet rings on the PCM assy (on CRT) to obtain a complete field of the color red. This is done by moving the two tabs (2-pole) in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180 degree.
- Check by full green pattern and full blue pattern again to observe their respective color purity.

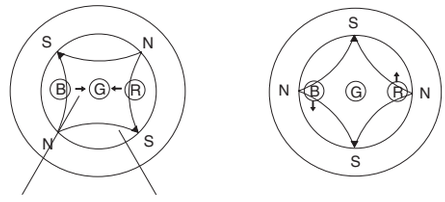
12. Static convergence

Introduction
Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the CRT. These are the 4-pole magnet and the 6-pole magnet.
The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the other. The 6-pole magnet moves the outermost electron beam (R, B and G) parallel in the opposite direction from the other.
The magnetic field of the above magnets do not affect the center of the CRT neck.

Setting
- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly.
- Signal: 640 * 480, 31.5 kHz/60 Hz mode.
- Set the tabs of the 4-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R and B electron beams.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- Pole magnet again.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- pole magnet again.

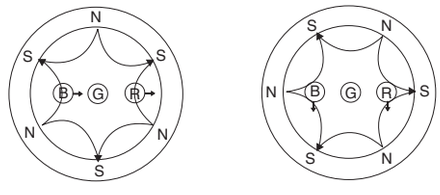


4-pole Beam motion producced by the 4-pole convergence magnet



Beam displacement direction Magnetic flux lines

6-pole Beam motion producced by the 6- pole convergence magnet



DDC DATA & EDID CODE

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****

EDID log file

****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : E002 (HEX.)
- ID Serial Number : ***** (HEX.)
- Week of Manufacture : 26
- Year of Manufacture : 2000

EDID Version, Revision
- Version : 1
- Revision : 1

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.000V (0.70Vpp)
  without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  without Sync on Green
  no Serration required
- Maximum H Image Size : 325
- Maximum V Image Size : 244
- Display Transfer Characteristic (gamma) : 2.65
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display

Color Characteristics
- Red X coordinate : 0.625
- Red Y coordinate : 0.34
- Green X coordinate : 0.29
- Green Y coordinate : 0.605
- Blue X coordinate : 0.15
- Blue Y coordinate : 0.07
- White X coordinate : 0.283
- White Y coordinate : 0.297

Established Timings
- Established Timings I : 720 x 400 @70Hz (IBM,VGA)
  640 x 480 @60Hz (IBM,VGA)
  640 x 480 @75Hz (VESA)
- Established Timings II : 800 x 600 @75Hz (VESA)
  1024 x 768 @75Hz (VESA)
  1280 x 1024 @75Hz (VESA)
- Manufacturer's timings :

Standard Timing Identification #1
- Horizontal active pixels : 640
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #2
- Horizontal active pixels : 800
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #3
- Horizontal active pixels : 1024
- Aspect Ratio : 4:3
- Refresh Rate : 85

Standard Timing Identification #4
- Horizontal active pixels : 1280
- Aspect Ratio : 5:4
- Refresh Rate : 85

Standard Timing Identification #5
- Horizontal active pixels : 1280
- Aspect Ratio : 4:3
- Refresh Rate : 85

Detailed Timing #1
- Pixel Clock (MHz) : 157.5
- H Active (pixels) : 1280
- H Blanking (pixels) : 448
- V Active (lines) : 1024
- V Blanking (lines) : 48
- H Sync Offset (F Porch) (pixels) : 64
- H Sync Pulse Width (pixels) : 160
- V Sync Offset (F Porch) (lines) : 1
- V Sync Pulse Width (lines) : 3
- H Image Size (mm) : 306
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Positive Vertical Sync.
  : Positive Horizontal Sync.

Monitor Descriptor #2
- Serial Number : TY 002267

Monitor Descriptor #3
- Monitor Name : Philips 107P2

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 50
- Max. Vt rate Hz : 160
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 92
- Max. Supported Pixel : Not specified

Extension Flag : 0

Check sum : 96 (HEX.)

****

EDID data (128 bytes)

****

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 6a 11: 79 12: 01 13: 00 14: 00 15: 00
16: 05 17: 0a 18: 01 19: 01 20: 7e 21: 20 22: 18 23: a5
24: e8 25: 04 26: 88 27: a0 28: 57 29: 4a 30: 9b 31: 26
32: 12 33: 48 34: 4c 35: a4 36: 43 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 99 46: a9 47: 4f
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 68 55: 5b
56: 80 57: a8 58: 72 59: a0 60: 3c 61: 50 62: 80 63: d0
64: 13 65: 00 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1e
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 30 83: 30 84: 32 85: 32 86: 36 87: 37
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 50 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 60 117: ff 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 96

*note: Address 78 & 79 for factory code:
For example : fill in "54" & "59" at address 78 & 79, it stands for "TY".
fill in "48" & "43" at address 78 & 79, it stands for "HC".

Factory code for each site is as below.

Brazil	H C (48h, 43h)	Shenzshen	C X (43h, 58h)
Chungli	T Y (54h, 59h)	Suzhou	B Z (42h, 5Ah)
Delta	G K (47h, 4Bh)	Szombathely	H D (48h, 44h)
Juarez	Y A (59h, 41h)	Raleigh	IO (49h, 4Fh)

serial no. address : 82, 83, 84, 85, 86, 87, 88, 89

For example,Monitor Descriptor #2

Serial Number:

□ TY (or HC, YA, BZ ... etc) □□ SSSSSS ----- for PHILIPS Brand

(blank, blank blank)

S: stands for "serial number"

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DDC Instructions

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1. General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect,repaired monitor' the serial numbers have to be re-programmed.

It is advised to re-soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

DDC EDID structure
For the monitor : Standard Version 3.0
Structure Version 1.3

2. System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98.
3. EDID301.EXE program (3138 106 10103) shown as Fig. 1
4. Software DDC Alignment kits (4822 310 11184) shown as Fig. 2.

The kit contents: a. Alignment box x1
b. Printer cable x1
c. D-Sub cable x1

Note: The EDID301.EXE (Release Version 1.55) is a windows-based program, which cannot be run in MS-DOS.

Figure 1 Diskette with EDID301.EXE

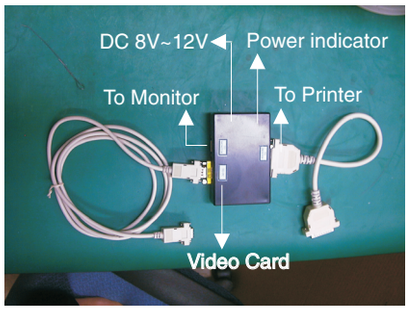
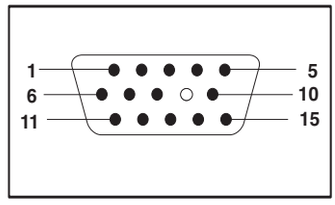


Fig. 2 Alignment Kits

3. Pin assignment

A. 15-pin D-Sub Connector

The 15-pin D-sub connector (male) of the signal cable on the 3rd row for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic ground
3	Blue video input	11	Identification output - Connected to pin 10
4	Identification output - Connected to pin 10	12	Serial data line(SDA)
5	Ground	13	H.Sync
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

4. Configuration and procedure

Following descirptions are the connection and procedure for Software DDC, the main EEPROM can be re-programmed along with Software DDC by enabling “factory memory data write” function on the DDC program (EDID301.EXE).

To access factory mode:

Turn off monitor (don’t turn off PC)

- Press " ◀▶ " and " ⏻ " simultaneously on the front control panel ,then press " ⏻ ",wait till the OSD menu with characters " factory mode (below OSD menu)" come on the screen of monitor.

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID301.EXE). Following steps show you the procedures and connection.

Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
Step 2: Connecting printer cable and video cable of monitor as Fig. A
Step 3: Run the EDID301.EXE program until the main menu appears. This is for initialize alignment box.

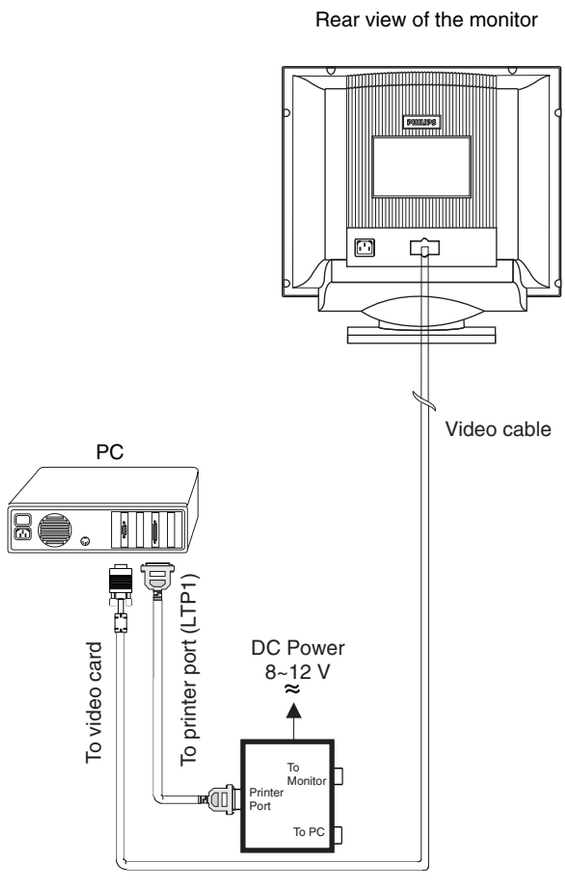


Fig. A

Re-programming Software DDC

Step 1: After initialize alignment box, connecting all cables and box as Fig. 3
Step 2: Follow the steps on DDC re-programming instructions to staring re-programming.

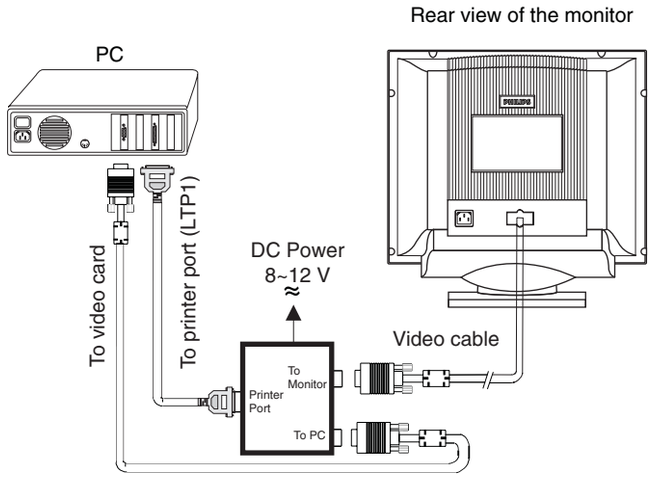


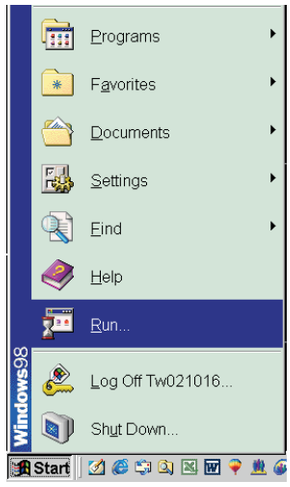
Fig. 3

5. DDC re-programming instructions

Start on DDC program

Start Microsoft Windows.

1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click Start , choose Run at start menu of Windows 95/98.



4. At the submenu, type the letter of your computer’s floppy disk drive followed by :EDID301 (for example, A:\EDID301, as shown in Fig. 5).

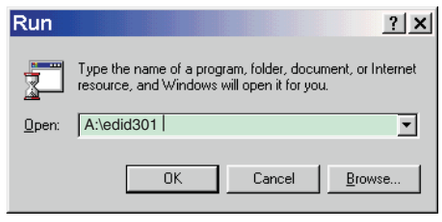


Fig. 5

DDC Instructions

Go to cover page

5. Click [OK] button. The main menu appears (as shown on Fig. 6).

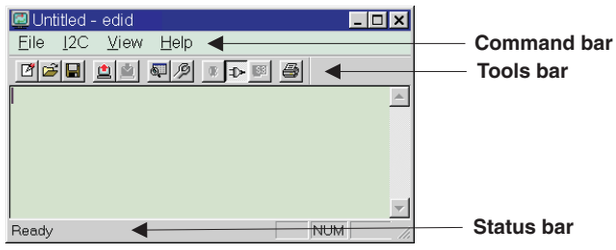


Fig. 6

Note: If the connection is improper, you will see the following error message before entering the main menu. Meanwhile, the [icon] (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.

Loading DDC data from monitor

1. Click [icon] icon on the tools bar to bring up the Configuration Setup windows as Fig.7
2. Select the DDC2B as the communication channel.
3. Enable Factory memory data write function and fill in page address "F0" to the block.
4.. Click [OK] button to confirm your selection.

Note: The Factory memory data write function will allow EDID301 to rewrite the serial numbers of Software DDC data in main EEPROM.

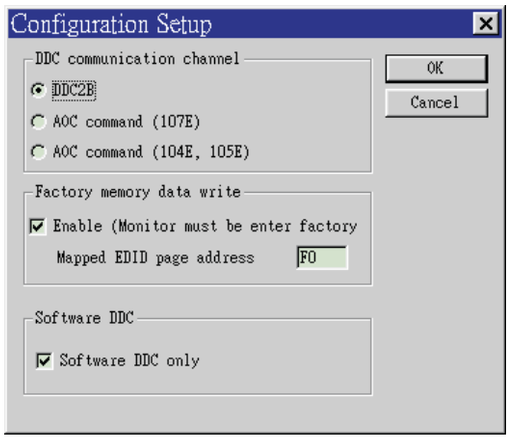
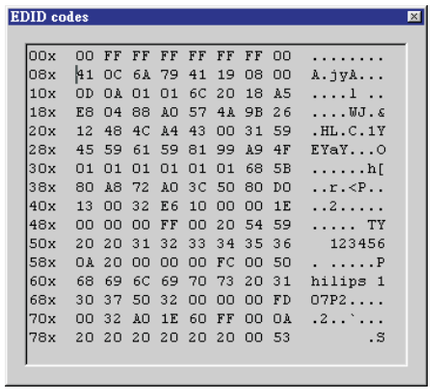


Fig. 7

4. Click [icon] icon to read DDC EDID data from monitor. The EDID codes will display on screen as following. (The EDID codes are dependent on the model.)



Note: During the loading, EDID301 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen (Fig. 8). Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. Software DDC Data that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.
5. ☐Software DDC only is disable.

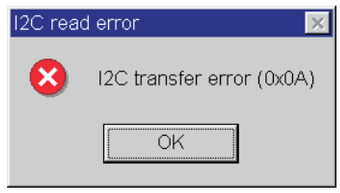
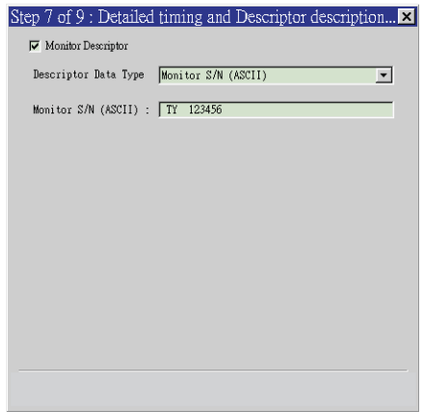


Fig. 8

Modify DDC data (Serial No.)

1. Click [icon] icon on the toosl bar.
2. Click [Next>] till the Step 7 of 9 window appears.
3. Type the new Serial No. (for example, TY 123456).
4. Click [Next>] till the last step window appears, then click [Finish] to exit the Step window.



Back Forward

DDC Instructions

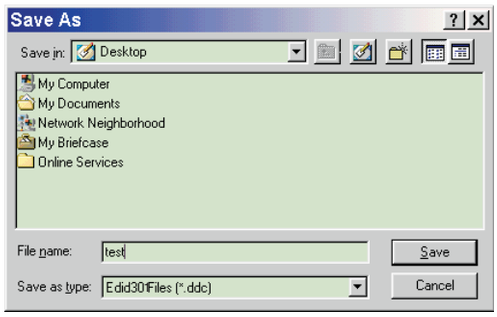
Write DDC data to monitor

1. Click icon from the tools bar to starting rewrite DDC data.
2. Click for confirmation.

Save DDC data as a file

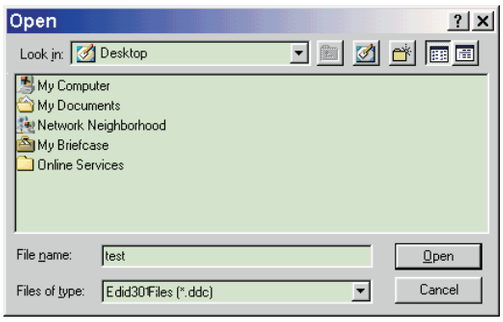
Sometimes, you maybe need to save DDC data as a text file for using on other DDC chip. To save DDC data, follow the steps below:

1. Click icon on the tools bar and type a file name you like. The file format is ddc type which can be open by Microsoft WordPad.
2. Click Save button.



Load DDC data from file

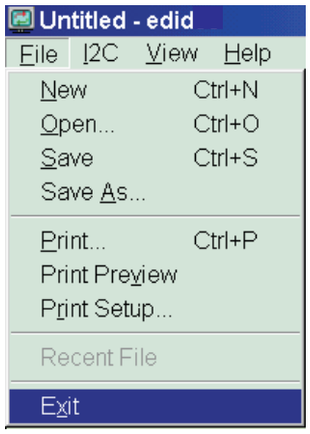
1. Click from the tools bar.
2. Select the file you want to open.
3. Click Open Button.



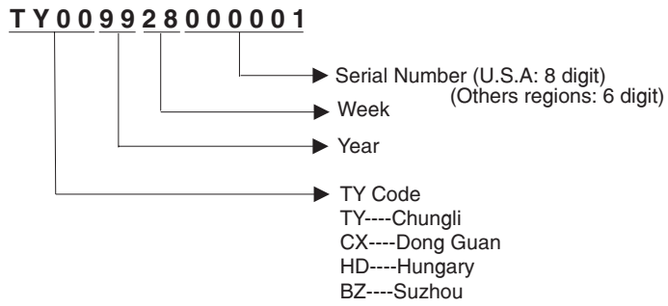
4. Now you can re-programming DDC data which you just loaded from a file, please be confirmed that model and serial number are correct and match with the monitor you are trying to re-write.

Exit DDC program

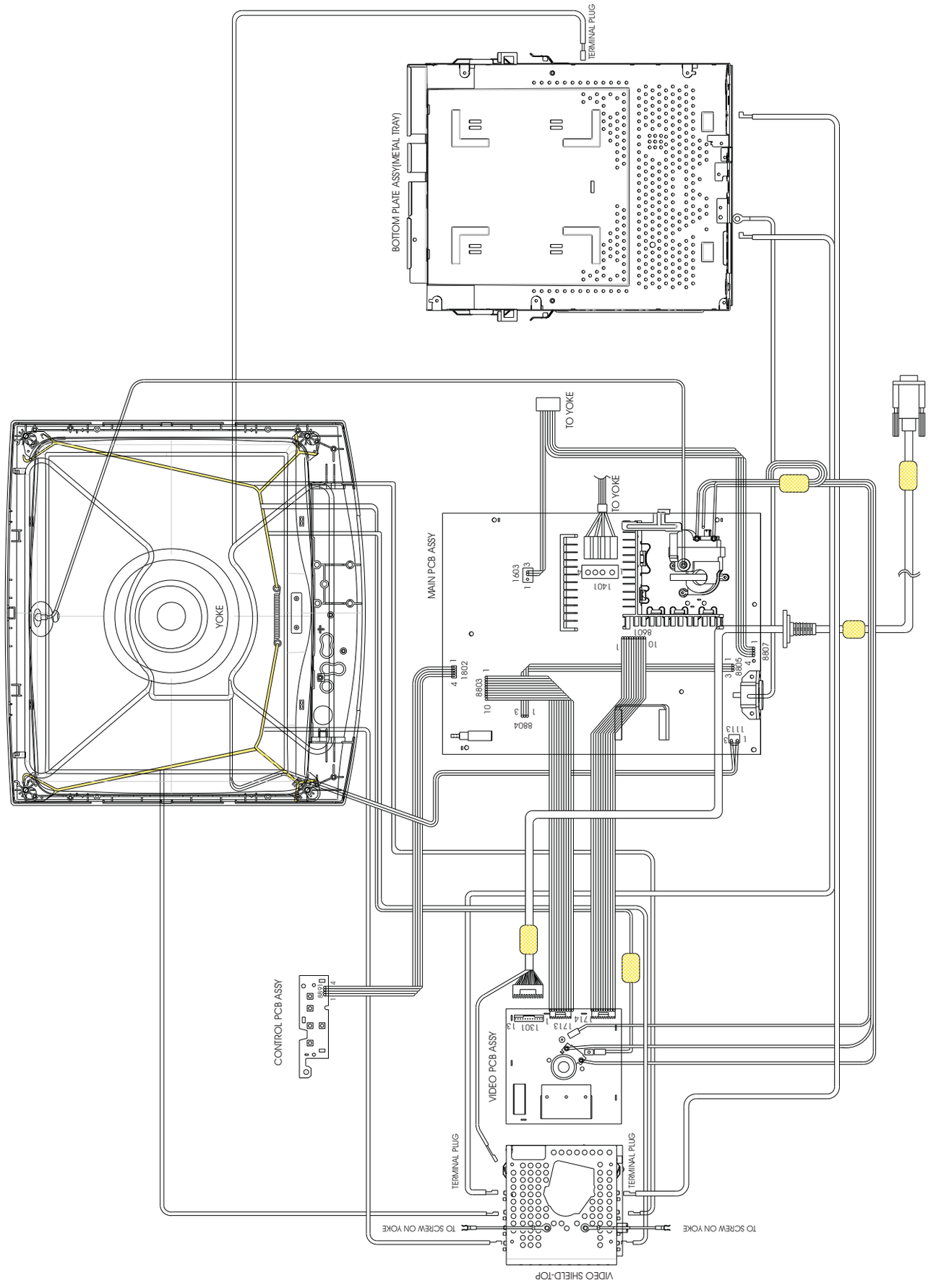
1. Click file command on the command bar then select Exit.



Definition of Serial Number



Wiring diagram



Mechanical Instructions

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0. General
To be able to perform measurements and repairs on the "circuit boards", these unit should placed in the service position first.

1.Remove the rear cover
There are 2 screws in the lid [1 screw are at the right side of the monitor, The other 1 screw are at the left side of the monitor],to fix the front cabinet and back cover of the monitor.

Step 1: To open the lid at the right-upper side and 1screw in right-downer side of the monitor.(FIG.3)
Step 2: To open the lid at the left-upper side and 1screw in left-downer side of the monitor.(FIG.4)
Step 3: To remove the backcover, you can see FIG.5
Step 4: To remove the 5 screws on the bottoml shield, and remove the bottoml shield, you can see FIG.1.

Fig.2

2. Video panel(1157)
a.Cutoff all wire cable ties
b.Remove GRD wire between video shield and CRT rack.
c.Remove 1 screw between mains board rack and video shield
d. cutoff 1 cable tie on LOT wire
e.Remove GRD wire (1711)from video PCB to CRT rack.

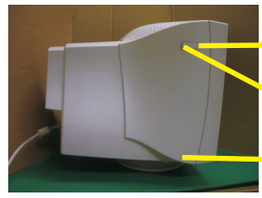

Fig.3

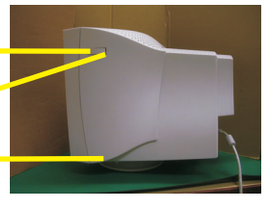

Fig.4

3. Main panel(1155)
- Disconnect the degaussing coil (1113)from Main panel.
- Remove the video panel from CRT.
- Remove the "screw" of I/F cable from Main panel.
- Disconnect the CRT ground wire from main panel.
- Disconnect the Hi-Pot cap from CRT.
- Disconnect yoke wire from "1401".
- Disconnect the control panel(1802)
- Slide the main panel out of bottom tray.
- Connect yoke wire to "1401".
- Connect the control panel(1802)
- Place Main panel in service position as shown in Fig.1.
- Mount Video panel again on CRT.
- To connect Hi-Pot cap again.

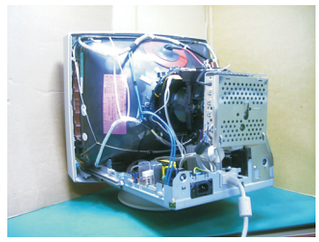

Fig.5

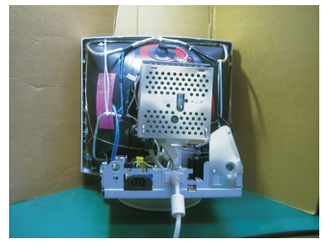

Fig.6

4. service position

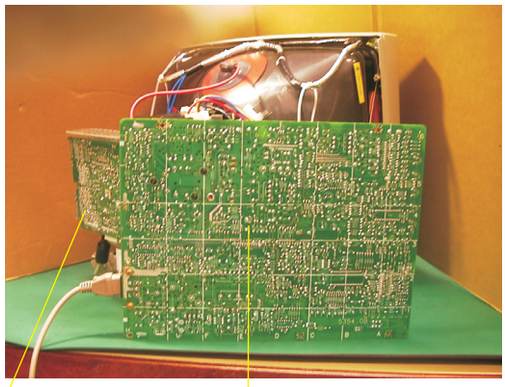

Fig.1

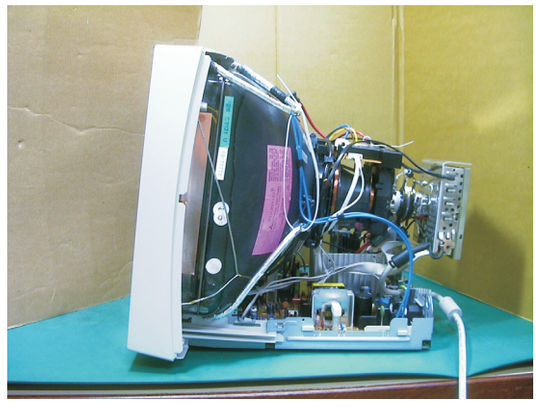

Fig.7

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Forward

Warning and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ⚠.
2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).
3. **ESD**
   All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.
4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.
5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.
6. It is recommended that saferty goggles be worn when replacing the picture tube.
7. When making adjustments,use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.
8. Never replace modules or other components while the unit is switched on.
9. Together with the defleciton unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.
10. After repair, the wiring should be fastened in place with the cable clamps.
11. All units that are returned for service or repair must pass the original manufactures safety tests.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
   - Mode : 640 * 480 (31.5kHz / 60Hz)
   - Signal pattern : grey scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)
2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

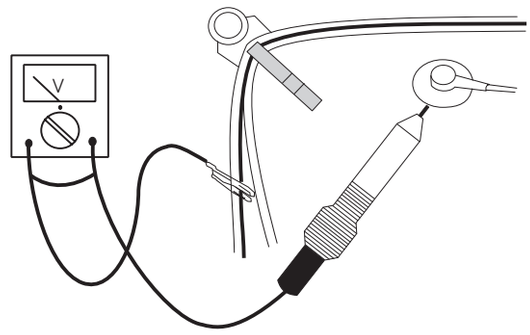


Fig.1

OSD Adjustments

The OSD Controls

BRIGHTNESS

To adjust your screen's brightness, follow the steps below. Brightness is the overall intensity of the light coming from the screen. A 50% brightness is recommended.

1) Press the ◄ or ► button on the monitor. The BRIGHTNESS window appears.

2) Press the ◄ or ► button to adjust the brightness.

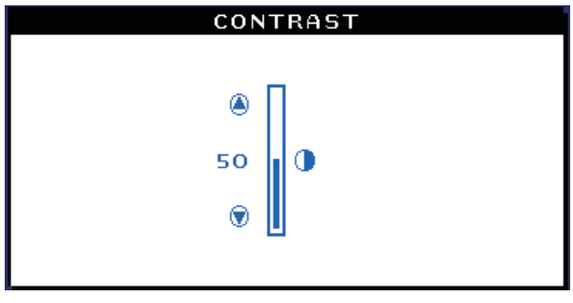
3) When the brightness is adjusted to the level desired, stop pressing the ◄ or ► button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

Smart Help After the BRIGHTNESS window has disappeared, to continue to the CONTRAST window, follow the steps under CONTRAST.

CONTRAST

To adjust your screen's contrast, follow the steps bellow. Contrast is the difference between the light and dark areas on the screen. A 100% contrast is recommended.

1) Press the ▲ or ▼ button on the monitor. The CONTRAST window appears.



2) Press the ▲ or ▼ button to adjust the contrast.

3) When the contrast is adjusted to the level desired, stop pressing the ▲ or ▼ button and after three seconds the CONTRAST window will disappear with the new adjustment saved.

Smart Help After the CONTRAST window has disappeared, to continue to the MAIN CONTROLS, follow the steps under LANGUAGE

LANGUAGE

The ON SCREEN DISPLAY shows its settings in one of five languages. The default is English, but you can select French, Spanish, German, or Italian.

1) Press the ⏻ button on the monitor. The MAIN CONTROLS window appears. LANGUAGE should be highlighted.

2) Press the ⏻ button again. The LANGUAGE window appears.

3) Press the ▲ or ▼ button until the desired language is highlighted.

4) Press the ⏻ button to confirm your selection and return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted...

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to INPUT SIGNAL SELECTION, press the ▲ button until INPUT SIGNAL SELECTION is highlighted. Next, follow steps 3 - 5 under INPUT SIGNAL SELECTION.

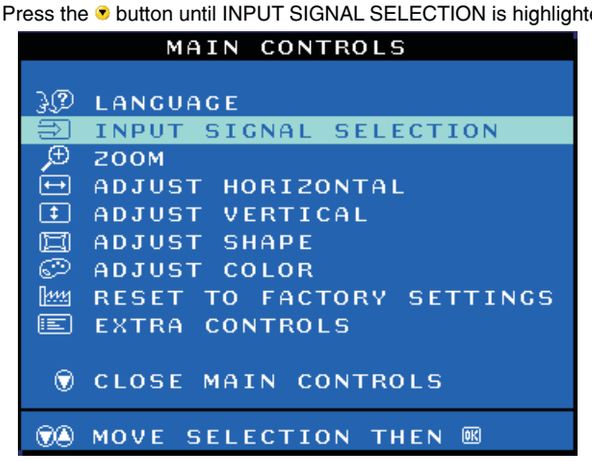
. . . to exit completely, press ⏻ the button

INPUT SIGNAL SELECTION (Not available in all models)

INPUT SIGNAL SELECTION determines what you see on the screen. The default setting is INPUT A, but if the video input signal is different that the output signal, you may want to change it to INPUT B.?

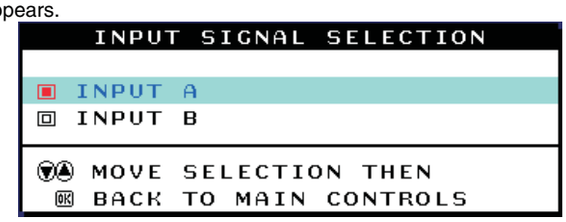
1) Press the ⏻ button on the monitor. The MAIN CONTROLS window appears.

2) Press the ▼ button until INPUT SIGNAL SELECTION is highlighted.



OSD Adjustments

3) Press the button. The INPUT SIGNAL SELECTION window appears.



4) Press the or button to highlight INPUT B or INPUT A.

5) Press the button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. to continue to ZOOM, press the button until ZOOM is highlighted. Next, follow steps 3 - 5 under ZOOM.

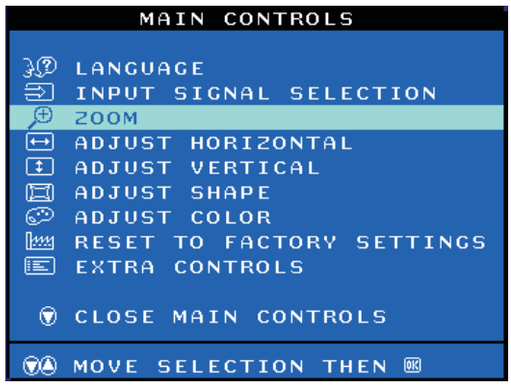
. . . to exit completely, press the button

ZOOM

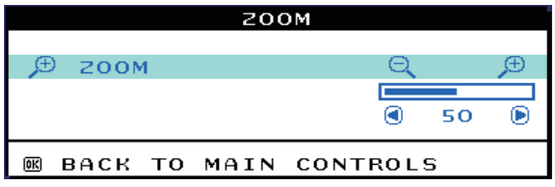
ZOOM increases or decreases the size of the images on your screen. To adjust the ZOOM follow the steps below.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ZOOM is highlighted.



3) Press the button. The ZOOM window appears.



4) Press the or button to adjust ZOOM.

5) Press the button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST HORIZONTAL, press the button until ADJUST HORIZONTAL is highlighted. Next, follow steps 3 - 7 under ADJUST HORIZONTAL.

. . . to exit completely, press the button

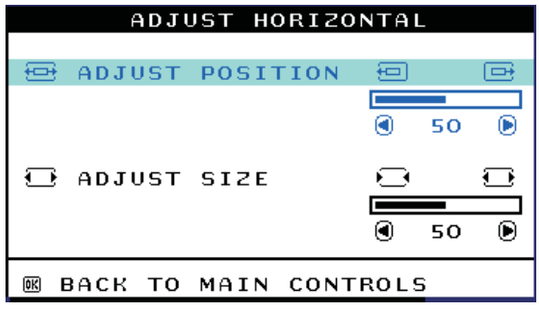
ADJUST HORIZONTAL

ADJUST POSITION under ADJUST HORIZONTAL shifts the image on your screen either to the left or right. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST HORIZONTAL expands or controls the image on your screen, pushing it out toward the left and right sides or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

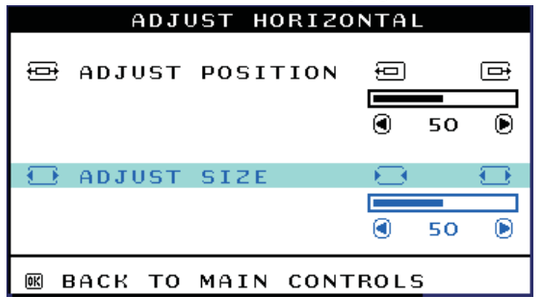
2) Press the button until ADJUST HORIZONTAL is highlighted.

3) Press the button. The ADJUST HORIZONTAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image to the left or right.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the to highlight ADJUST SIZE.



6) To adjust the horizontal size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST VERTICAL, press the button until ADJUST VERTICAL is highlighted. Next, start with step 3 under ADJUST VERTICAL and follow the directions.

. . . to exit completely, press the button

ADJUST VERTICAL

ADJUST POSITION under ADJUST VERTICAL shifts the image on your screen either up or down. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST VERTICAL expands or controls the image on your screen, pushing it out toward the top or bottom or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

OSD Adjustments

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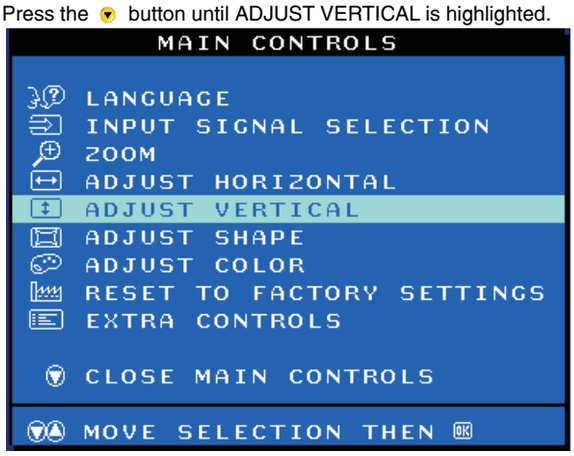
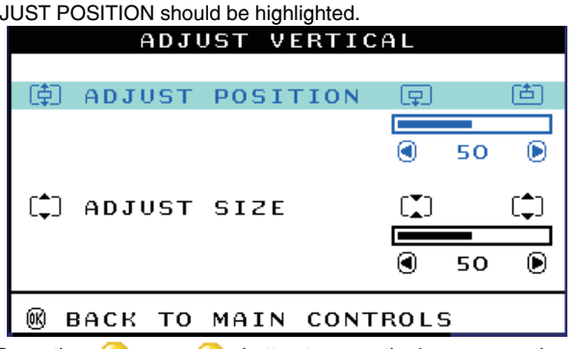
2) Press the button until ADJUST VERTICAL is highlighted.

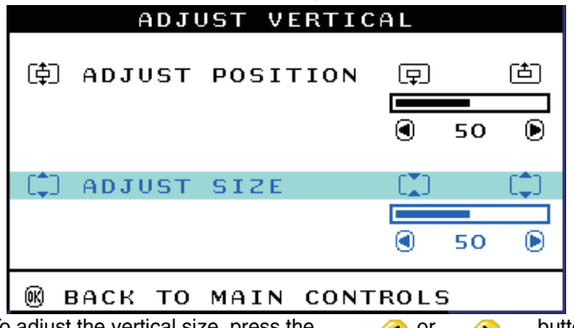


3) Press the button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image up or down.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the to highlight ADJUST SIZE.



6) To adjust the vertical size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST SHAPE, press the button until ADJUST SHAPE is highlighted. Next, start with step 3 under ADJUST SHAPE and follow the directions.

. . . to exit completely, press the button

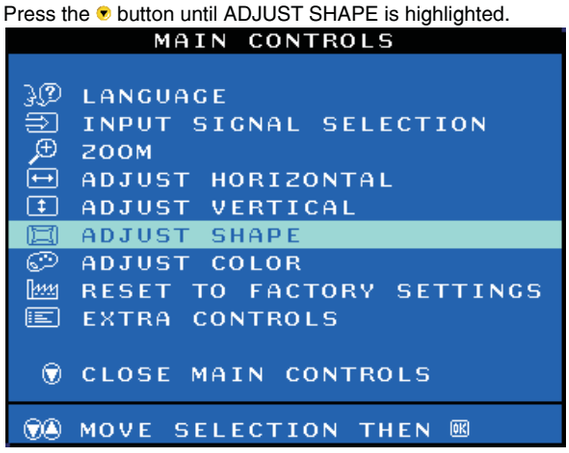
ADJUST SHAPE

ADJUST SIDE CURVE

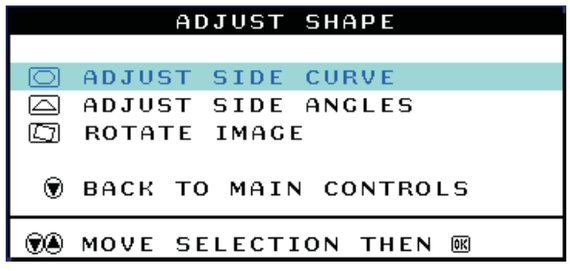
ADJUST SIDE CURVE under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use these features only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

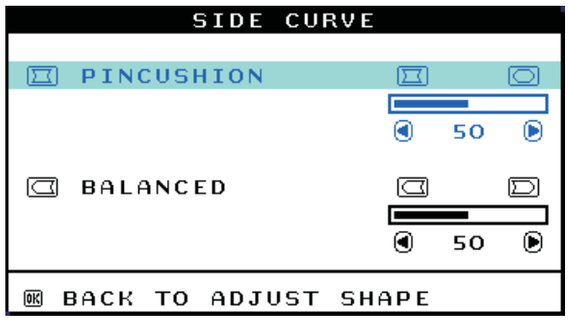
2) Press the button until ADJUST SHAPE is highlighted.



3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

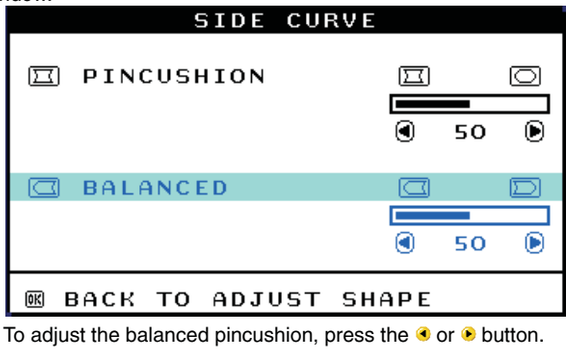


4) Press the button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



5) To adjust the pincushion, press the or button.

6) When the pincushion is adjusted, press the button to highlight BALANCED or press the button to return to the ADJUST SHAPE window.



7) To adjust the balanced pincushion, press the or button.

8) When the balanced pincushion is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

9) Press the button to return to the MAIN CONTROLS window, or press the button until ADJUST SIDE ANGLES is highlighted.

Back Forward

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ADJUST SIDE ANGLES, start with step 5 under ADJUST SIDE ANGLES and follow the directions.

...to exit completely, press the button twice.

...to adjust only the BALANCED pincushion, follow steps 1 - 4 above, then press the button, and follow steps 7 - 9.

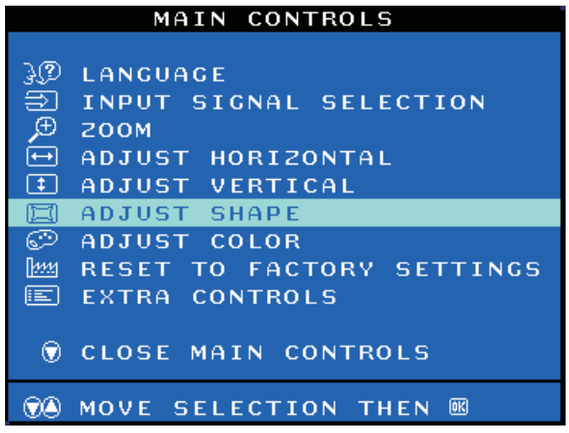
...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the button, and follow steps 7 -9

ADJUST SIDE ANGLES

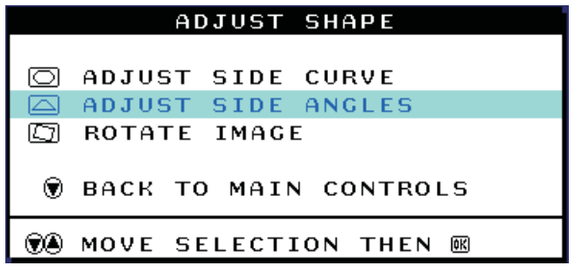
ADJUST SIDE ANGLES under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are TRAPEZOID and PARALLELOGRAM. Note: use these features only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.

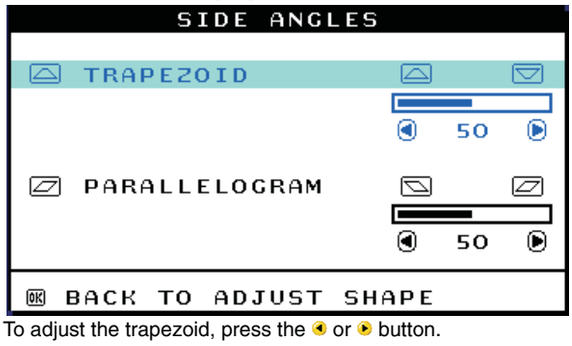


3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.



4) Press the button to highlight ADJUST SIDE ANGLES.

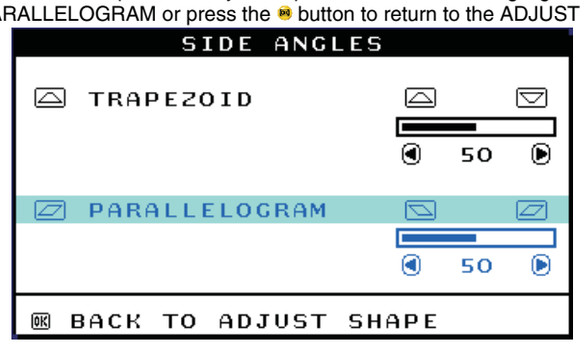
5) Press the button. The SIDE ANGLES window appears. TRAPEZOID should be highlighted.



6) To adjust the trapezoid, press the or button.

SHAPE window.

7) When the trapezoid is adjusted, press the button to highlight PARALLELOGRAM or press the button to return to the ADJUST



8) To adjust the parallelogram, press the or button.

9) When the parallelogram is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

10) Press the button to return to the MAIN CONTROLS window, or press the button until ROTATE IMAGE is highlighted.

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ROTATE IMAGE, start with step 5 under ROTATE IMAGE and follow the directions.

...to exit completely, press the button twice.

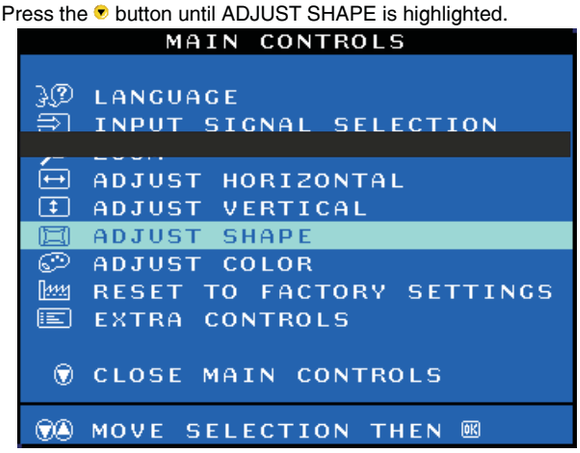
...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the button, and follow steps 7 -9

ROTATE IMAGE (Not available in all models)

ROTATE IMAGE under ADJUST SHAPE allows you to adjust one of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use this feature only when the picture is not square.

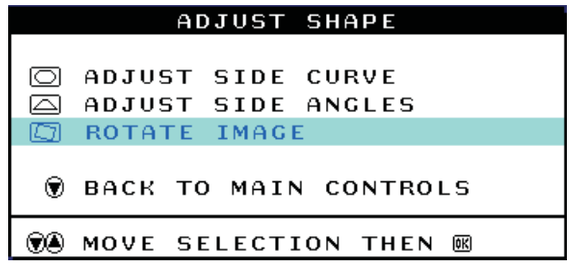
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.



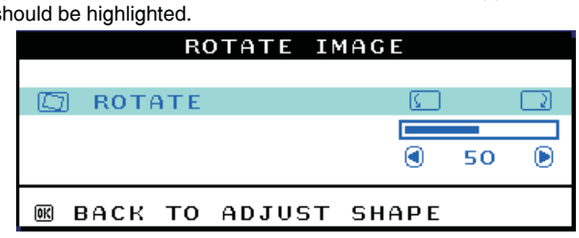
3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

4) Press the arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

5) Press the button. The ROTATE IMAGE window appears. ROTATE should be highlighted.



6) To adjust the rotation, press the or button.

7) When the rotation is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN CONTROLS should be highlighted.

8) Press the button to return to MAIN CONTROLS.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST COLOR, press the button until ADJUST COLOR is highlighted. Next, start with step 3 under ADJUST COLOR and follow the directions.

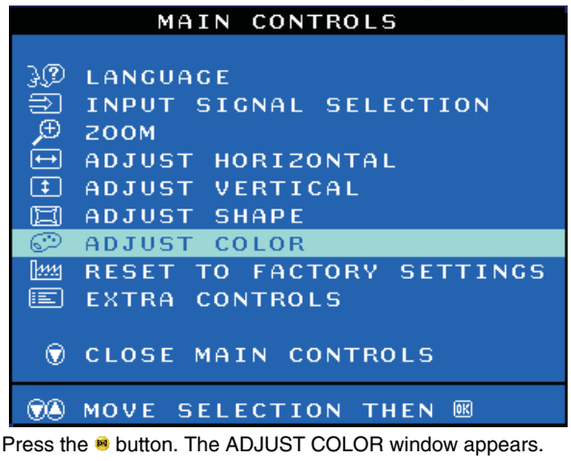
...to exit completely, press the button twice.

ADJUST COLOR

Your monitor has two preset options you can choose from. The first option is for GENERAL USE, which is fine for most applications. The second option is for GAMES, which is for playing computer games. When you select one of these options, the monitor automatically adjusts itself to that option. There is also a third option, USER PRESET, which allows you to adjust the colors on your screen to a setting you desire.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

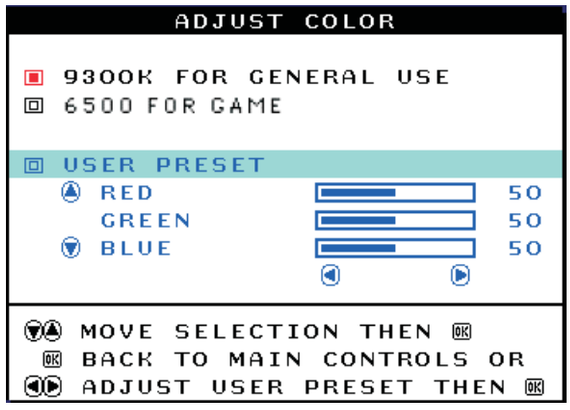
2) Press the button until ADJUST COLOR is highlighted.



3) Press the button. The ADJUST COLOR window appears.

4) Press the or button to highlight 9300K for GENERAL USE, 6500K for GAMES, or USER PRESET.

5) Once you have highlighted GENERAL USE or GAMES, press the button to confirm you selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.



6a) ?If USER PRESET is highlighted, press the button to highlight RED. Next, press the or button to adjust the color red.

6b) ?When finished with RED, press the button to highlight GREEN. Next, press the or button to adjust the color green.

6c) ?When finished GREEN, press the button to highlight BLUE. Next, press the or button to adjust the color blue.

6d) ?When all adjustments are complete, press the button to confirm your adjustments and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS. . .

. . . to continue to RESET TO FACTORY SETTINGS, press the button until RESET TO FACTORY SETTINGS is highlighted. Next, start with step 3 under RESET TO FACTORY SETTINGS.

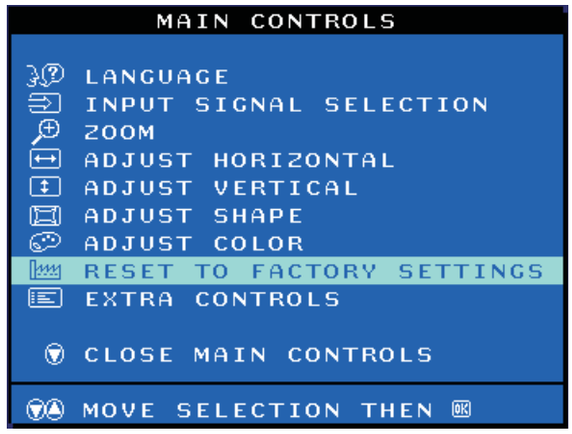
. . . to exit completely, press the button.

RESET TO FACTORY SETTINGS

RESET TO FACTORY SETTINGS returns everything in all the windows to factory presets.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

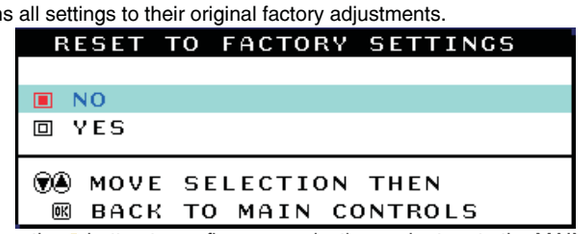
2) Press the button until RESET TO FACTORY SETTINGS is highlighted.



3) Press the button. The RESET TO FACTORY SETTINGS window appears.

OSD Adjustments (Continued)

4) Press the ▲ or ▼ button to select YES or NO. NO is the default. YES returns all settings to their original factory adjustments.



5) Press the OK button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to EXTRA CONTROLS, press the ▲ button until EXTRA CONTROLS is highlighted. Next, start with step 3 under EXTRA CONTROLS.

. . . to exit completely, press the OK button.

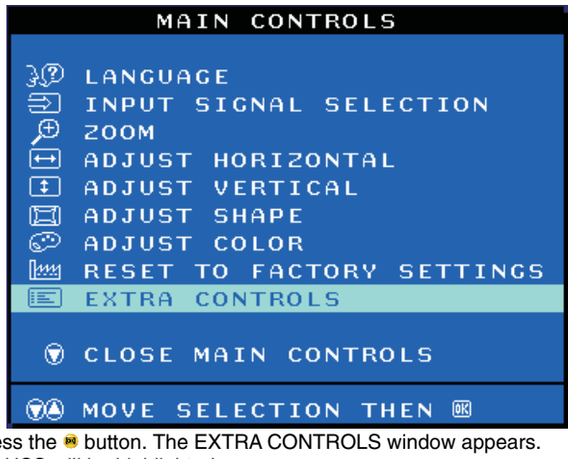
EXTRA CONTROLS

DEGAUSS

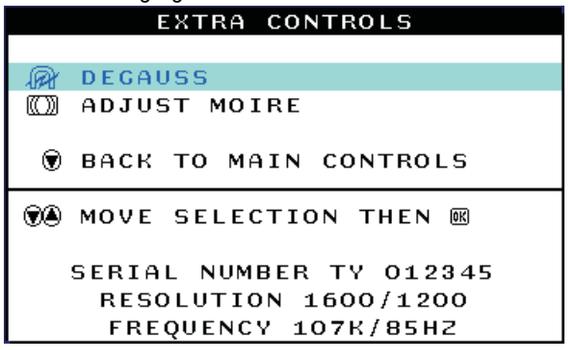
EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

1) Press the OK button on the monitor. The MAIN CONTROLS window appears.

2) Press the ▼ button until EXTRA CONTROLS is highlighted.



3) Press the OK button. The EXTRA CONTROLS window appears. DEGAUSS will be highlighted.



4) To degauss your screen, press the OK button. Your screen will be degaussed, then the MAIN CONTROLS window will reappear. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST MOIRE, press the ▲ button until EXTRA CONTROLS is highlighted. Next, start with step 3 under EXTRA CONTROLS, ADJUST MOIRE.

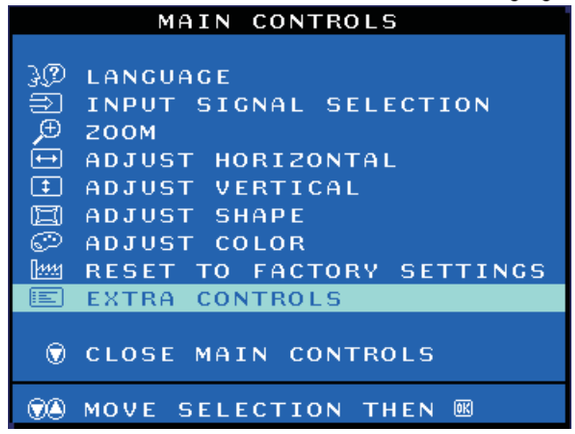
. . . to exit completely, press the OK button.

ADJUST CONVERGENCE (Not available in all models)

EXTRA CONTROLS is a set of features, including ADJUST CONVERGENCE. Convergence is a process by which a color is created by blending other colors. For example, white is created by blending red, blue, and green. If these colors do not completely blend together (converge) then you may see unwanted red, green, or blue lines or dots. To adjust the convergence, follow the steps below. Note: Use only if necessary. Remember: you must degauss the monitor BEFORE adjusting the convergence.

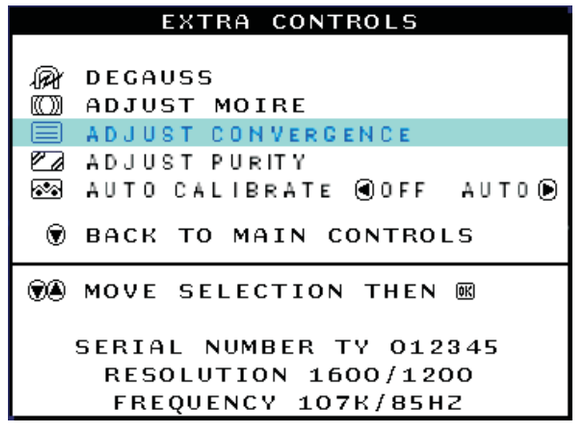
1) Press the MENU button on the monitor. The MAIN CONTROLS window appears.

2) Press the ▼ button until EXTRA CONTROLS is highlighted.

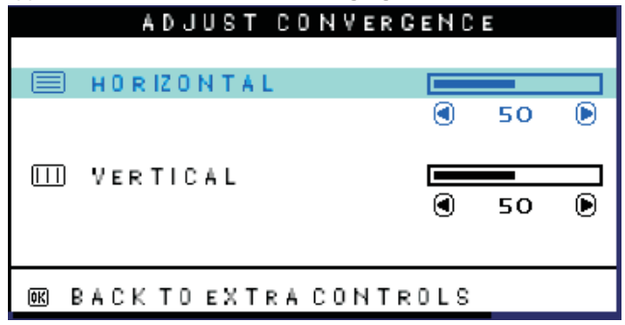


3) Press the MENU button. The EXTRA CONTROLS window appears. DEGAUSS is highlighted. Note: If you have not degaussed the monitor, please follow the steps under the Extra Controls - Degauss section of this manual before adjusting the convergence.

4) Press the ▼ button until ADJUST CONVERGENCE is highlighted.



5) Press the MENU button. The ADJUST CONVERGENCE window appears. ADJUST HORIZONTAL is highlighted.

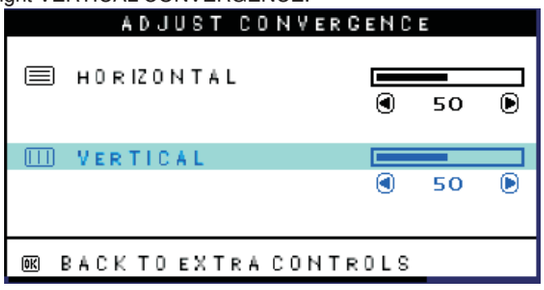


6) To adjust the horizontal convergence, press the ◀ or ▶ button.

OSD Adjustments (Continued)

Go to cover page

7) When the horizontal convergence is adjusted, press the button to highlight VERTICAL CONVERGENCE.



8) To adjust the vertical convergence, press the or button.

9) When the vertical convergence is adjusted, press the button to

return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS is highlighted.
Smart Help
After returning to EXTRA CONTROLS . . .

. . . to continue to ADJUST PURITY, press the button until ADJUST PURITY is highlighted. Next, start with step 4 under EXTRA CONTROLS - ADJUST PURITY.

Note: If you have not degaussed the monitor, please follow the steps under the Extra Controls - Degauss section of this manual before adjusting the purity.
. . . to exit completely, press the button twice.

ADJUST PURITY (Not available in all models)
EXTRA CONTROLS is a set of features, including ADJUST PURITY. Purity is a process by which colors appear clear and untainted, especially in the four corners of the monitor. Purity can be affected by such things as the presence of a magnetic source near the monitor or even by the ambient room temperature. For example, you might see the color red in a corner of the monitor screen where you should see only a pure white. To adjust the purity, follow the steps below. Note: Use only if necessary. Remember: you must degauss the monitor BEFORE adjusting the purity.

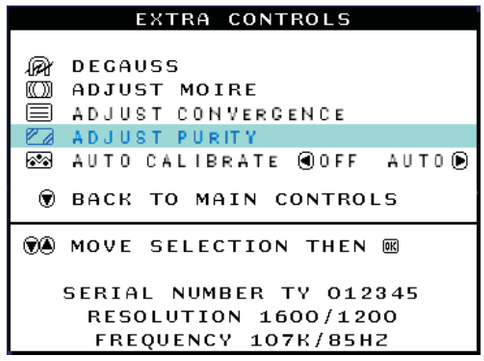
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until EXTRA CONTROLS is highlighted.

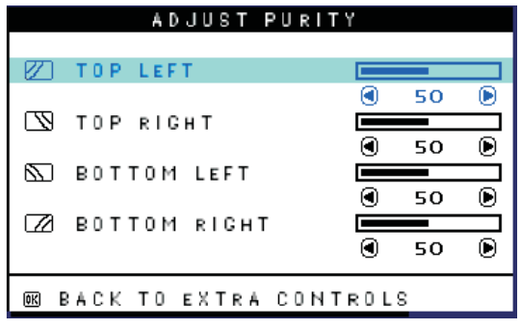
3) Press the button. The EXTRA CONTROLS window appears.

DEGAUSS is highlighted. Note: If you have not degaussed the monitor, please follow the steps under the Extra Controls - Degauss section of this manual before adjusting the purity.

4) Press the button until ADJUST PURITY is highlighted.

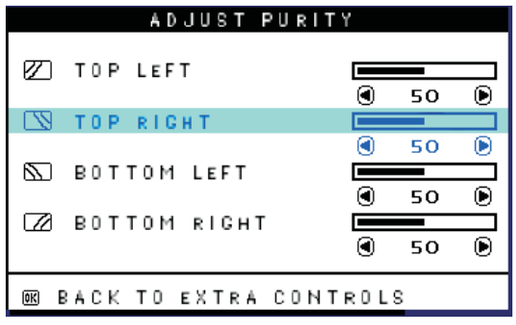


5) Press the . The ADJUST PURITY window appears. TOP LEFT is highlighted.



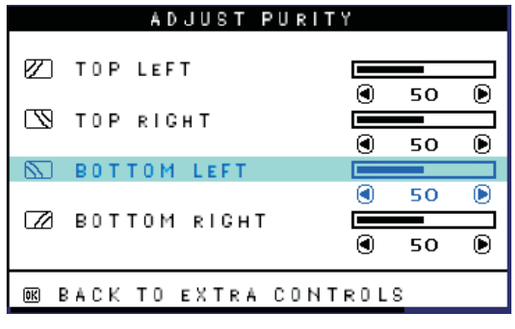
6) To adjust the top left purity, press the or button.

7) When the top left purity is adjusted, press the button to highlight TOP RIGHT.



8) To adjust the top right purity, press the or button.

9) When the top right purity is adjusted, press the button to highlight BOTTOM LEFT.

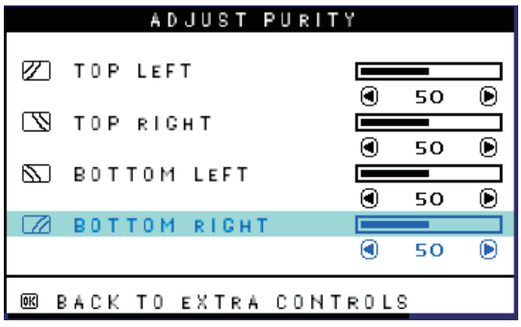


10) To adjust the bottom left purity, press the or button.

11) When the bottom left purity is adjusted, press the button to highlight BOTTOM RIGHT.

Back Forward

OSD Adjustments (Continued)



12) To adjust the bottom right purity, press the ◀ or ▶ button.

13) When the bottom right purity is adjusted, press the OK button to return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS is highlighted.

Smart Help
After returning to EXTRA CONTROLS . . .

. . . to continue to ADJUST PURITY, press the ▼ button until AUTO CALIBRATE is highlighted. Next, start with step 4 under EXTRA CONTROLS - AUTO CALIBRATE.

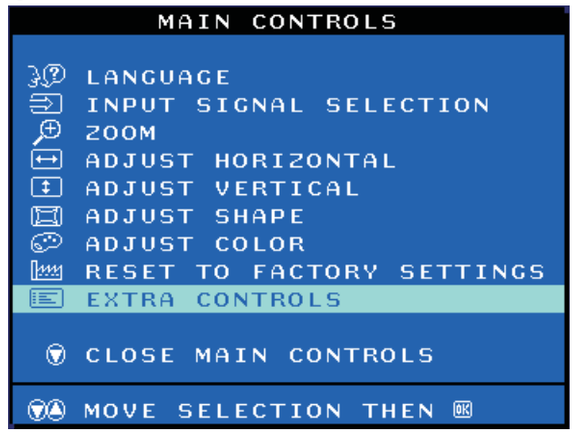
. . . to exit completely, press the OK button twice.

ADJUST MOIRE (Not available in all models)

EXTRA CONTROLS is a set of three features, including ADJUST MOIRE. Moire is a fringe pattern arising from the interference between two superimposed line patterns. To adjust your moire, follow the steps below. Note: Use only if necessary. By activating ADJUST MOIRE, sharpness can be affected.

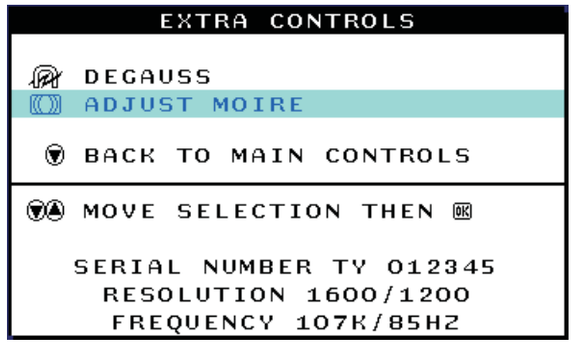
1) Press the OK button on the monitor. The MAIN CONTROLS window appears.

2) Press the DOWN CURSOR button until EXTRA CONTROLS is highlighted.

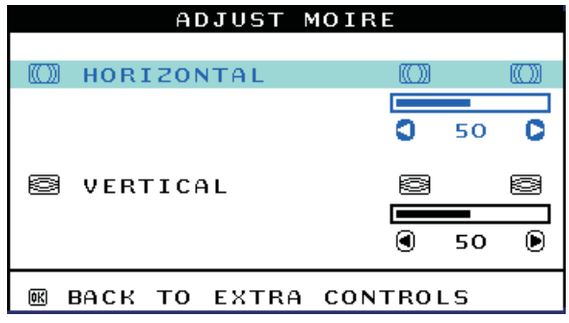


3) Press the OK button. The EXTRA CONTROLS window appears. DEGAUSS will be highlighted.

4) Press the ▼ button until ADJUST MOIRE is highlighted.



5) Press the OK button. The ADJUST MOIRE window appears. HORIZONTAL will be highlighted.

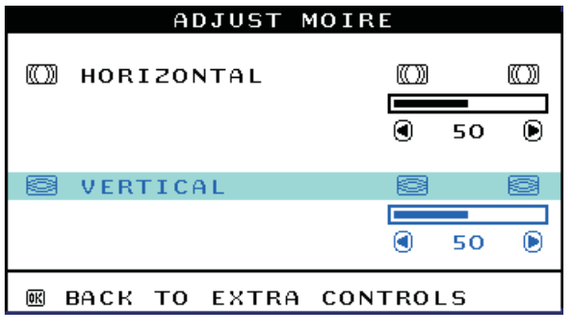


6) To adjust the horizontal moire, press the ◀ or ▶ button.

OSD Adjustments (Continued)

Go to cover page

7) When the horizontal moire is adjusted, press the button to highlight VERTICAL.



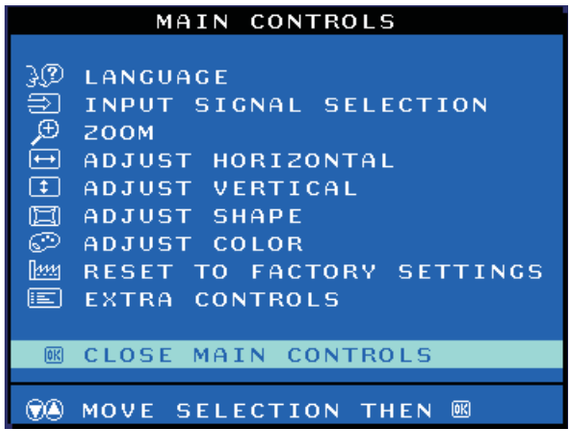
8) To adjust the vertical moire, press the or button.

9) When the vertical moire is adjusted, press the button to return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to exit completely, press the button.

CLOSE MAIN CONTROLS



To lock (disable) OSD function:

- Press OSD button " " for over 15 seconds to lock the OSD function. Release it, then OSD comes on the screen as below.

To unlock (enable) OSD function:

- Press OSD button " " for over 15 seconds again to unlock the OSD function.
Release it, then OSD comes on the screen as below.

Disable the WARNING SIGNAL & Access Service mode (burn in mode) :

The WARNING SIGNAL of NO SIGNAL INPUT appeared :

-After disconnect the Interface cable of the monitor,then Monitor is powered ON.

- If it is successful, the signal " NO SIGNAL INPUT " comes on the screen again later.

To disable all the WARNING SIGNAL :

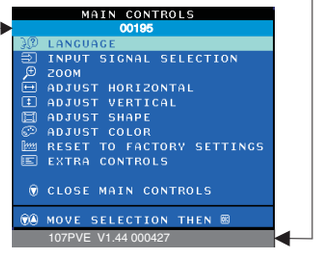
- Connect the Interface cable of the monitor (Monitor is ON.).

- If it is successful, then the signal " NO SIGNAL INPUT "disappeared.

Access Service Mode & Burn in mode

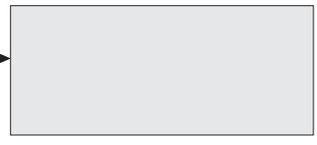
Firstly, get into Factory Adjustment Mode.

Push LEFT & RIGHT buttons at the same time for over 15 seconds and release them.
The factory message appears at the bottom of the main OSD menu. (for example :107PVE V1.44 000427 ; 00195 is M.T.B.F. in HOUR unit)



- Disconnect the Interface cable of the monitor.
- Push LEFT & RIGHT buttons at the same time,then power ON.

- If it is successful, the signal " " comes on the screen later. (Background is white.).
- In the beginning of service mode (full white pattern), the monitor will working at 48kHz of horizontal frequency,after 55 seconds, it will switch to 81kHz automatically, then change mode between two modes constantly every 55 seconds.



-Leave "burn in MODE" :

. Reconnect the interface cable to PC, then the "**burn in** MODE" disappear.

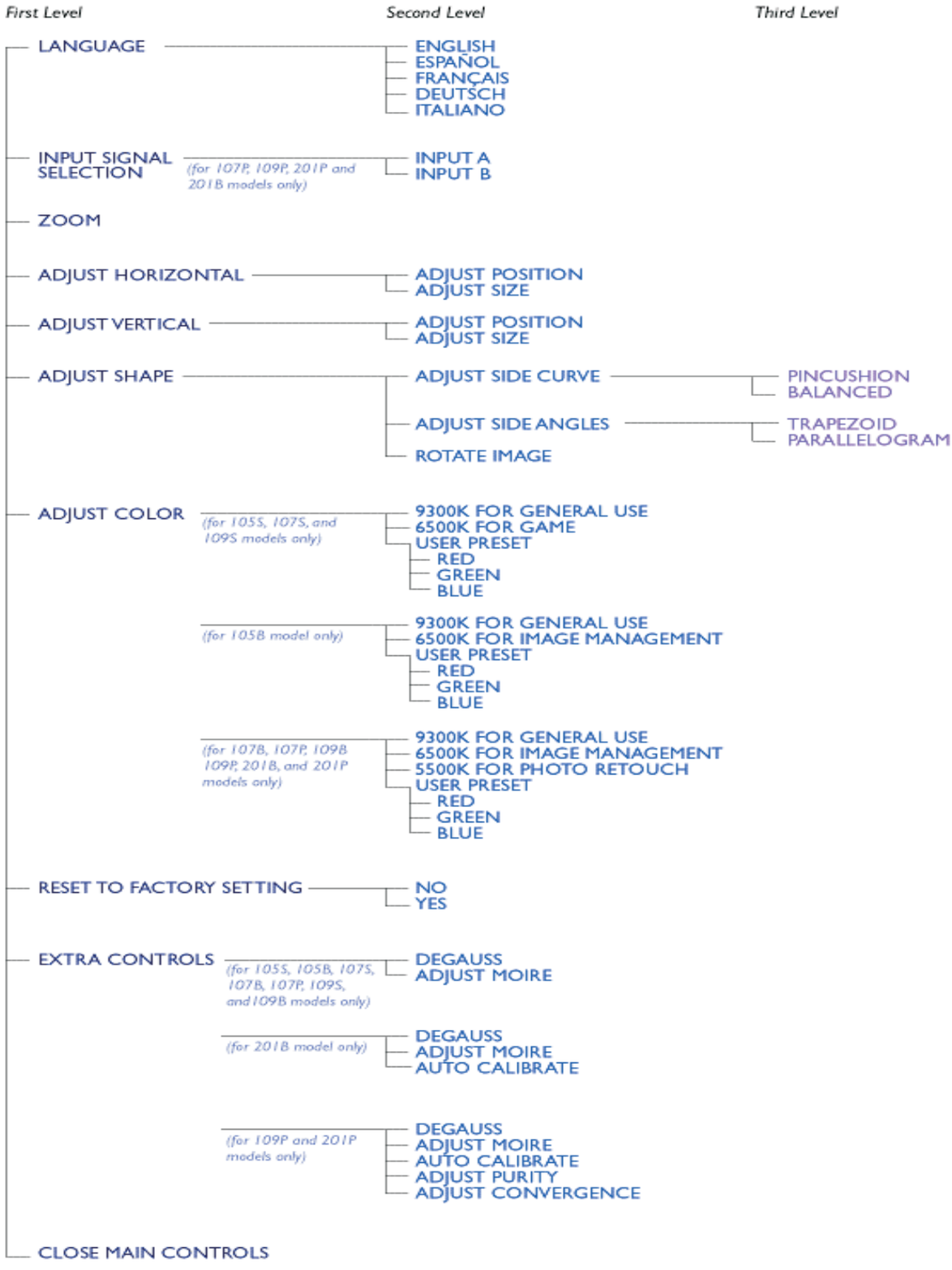
Back Forward

OSD menu tree structure

Go to cover page

The OSD Tree

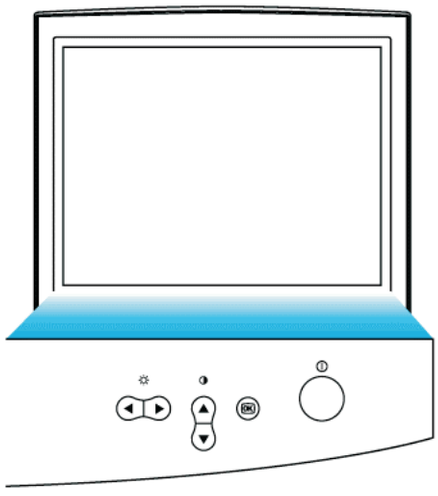
Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.



• Specifications are subject to change without prior notice.

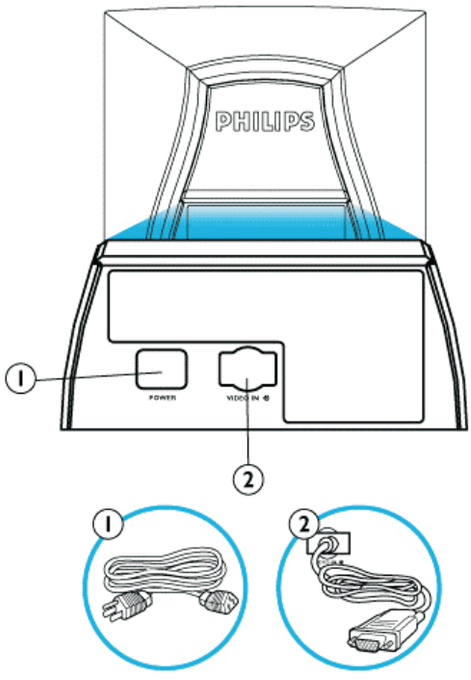
Installation

Front View



- Power button switches your monitor on.
- OK button which when pressed will take you to the OSD controls
- Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.
- UP and DOWN buttons are used when adjusting the OSD of your monitor
- Brightness hotkey. When both the LEFT and RIGHT arrows are pressed at the same time, then the adjustment controls for BRIGHTNESS will show up.
- LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

Rear V



1. Power in - attach power cable here.
2. Video In - this is a cable which is already attached to your monitor. Connect the other end of the cable to your PC.

On-Screen Display

Description of the On-Screen Display The OSD Tree The OSD Controls

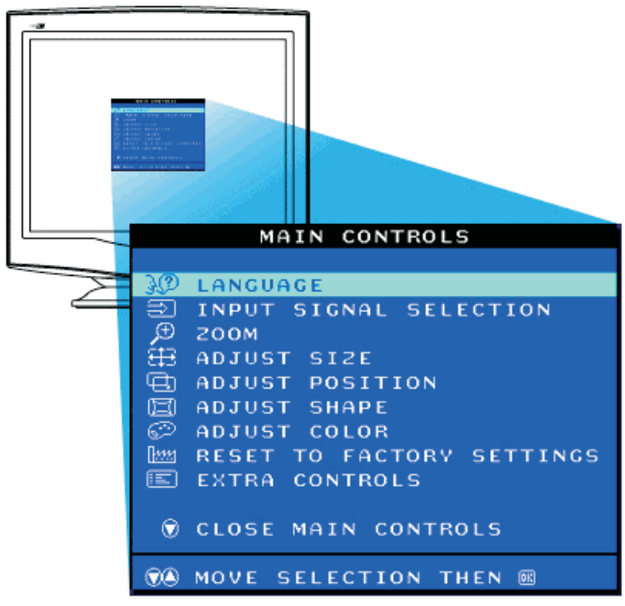
Description of the On Screen Display

What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly though an on-screen instruction window. The user interface provides user-friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

On the front controls of your monitor, once you press the button, the On Screen Display (OSD) Main Controls window will pop up and you can now start making adjustments to your monitor's various features. Use the or the keys to make your adjustments within.



The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.

Technical Data

Technical Specification*

CRT

Size and deflection	:17 inch/41cm,90°deflection angle
Dot pitch	: 0.25mm
Tube type	Aperture grille,flat ,high contrast, anti-glare,anti-static,anti-reflection,light transmission 38%
Phosphor	: B22
Recommended display area	: 12.0"x9.0"/306 x 230 mm
Maximum display area	: 12.8"x9.6"/325 x 244 mm

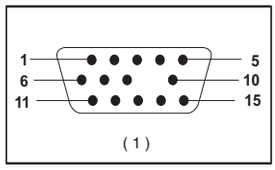
Scanning

Horizontal scanning	: 30 - 92 KHz
Vertical scanning	: 50 - 160 Hz

Video

Video dot rate	: 234 Mhz
Input impedance	
-Video	: 75 Ohm
- Sync	: 2.2 kOhm
Input signal levels	: 0.7Vpp
Sync input levels	: Separate sync Composite sync
Sync polarities	: Positive and negative

Pin assignment :



The 15-pin D-sub connector(male) of the signal cable :

Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin present
2	Green video input	10	Logic Ground
3	Blue video input	11	Identical output-Connected to pin 10
4	Identical output-Connected to pin 10	12	Serial data line(SDA)
5	Ground	13	H.Sync
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

Data Storage

Factory preset mode:

This monitor has 9 factory-preset modes as indicated in the following table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	V
M01	VGA	640 x 350	31.5	70	-	+
M02	VGA	640 x 400	31.5	70	-	+
M03	VGA	640 x 480	43.2	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.7	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07	EVGA	1024 x 768	68.7	85	+	+
M08	VESA	1280 x 1024	80.0	75	+	+
M09	VESA	1280 x 1024	91.1	85	+	+

White Color Temperature

Chromaticity CIE coordinates:

at 9300 °K	x = 0.283	y = 0.297
at 6500 °k	x = 0.313	y = 0.329
at 5500 °k	x = 0.332	y = 0.347

Power Management

Complies with EPA Energy Star and NUTEK specifications

Typical operation	: 92 W
Suspend/Standby Mode	: < 15 W
Off Mode	: < 3 W

Physical Specifications

Dimensions	: 399x373x419mm(excluding base) : 399x410x419mm(including base)
Net weight	: 17.5 Kg
Power supply	: 90 - 264 VAC, 50/60HZ
Power consumption	: 92 Watt
Operating condition	
Temperature	: 0 °C ~ 35 °C
Humidety	: 10 % ~ 90 %(W/O condensation)
Storage condition	
Temperature	: - 25 °C ~ 65 °C
Humidity	: 10 % - 90 % (W/O condensation)

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC,the monitor can automaticlly reduce is power consumption when not in use. And if an input from keyboard, mouse or orher input devices os detected, the monitor will automatically "wake up". The following table shows the power consumption and signalling of this automatic power saving feature :

Power Management Definition						
VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	< 92 W	0 %	Green
Stand-by	Blanked	No	Yes	< 15 W	> 84 %	Yellow
Suspend	Blanked	Yes	No	< 15 W	> 84 %	Yellow
OFF	Blanked	No	No	< 3 W	> 97 %	Amber

This monitor is Energy Star compliant .As an ENERGY STAR Parttner, PHILIPS has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

Go to cover page

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks

After the original swevice problem has been corrected,a complete safety check
should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

Fire and Shock H azard

1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and feom the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deteriortion and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans bythe Ref. No. in the parts list and enclosed within a broken line * (where seceral criticalcomponents are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a seoparate isolation transformer for the chassis Failure to use a separate isolation transformer may exopose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operted without danger of electrical shock.

* Broken line

Implosion

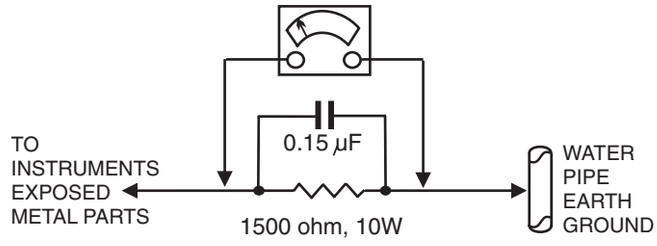
1. All picture tubes used in current model receivers are equipped with an intergral implosion system. Care should always be used, and safety glassesworn,whenever handling any picture tube. Avoid scratching or other rwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation

1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry isoperating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the anufacture,s rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is requlated correctlv and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV requation are always checked as a standard servicing procedure, and the reason for this prudent routine is cleary understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service.Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types,as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to pervent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check

1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts.When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to thr chassis, the reading must be infinity.Remove the jumper from the ac line cord.



Leakage Current Hot Check

1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohmsy volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measutement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before retutning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement

The primary source of X-radiation in this television receiver is the picture tube.The picturetube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter,or a Philips approved tupe.

Parts Replacement

Many electrical and mechanical parts in Philips television sets have special safety related charcteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WSRNING : Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.